Two Sections—Section One

Railway Age

WITH WHICH IS INCORPORATED THE RAILWAY REVIEW

FIRST HALF OF 1928—No. 4 NEW YORK—JANUARY 28, 1928—CHICAGO SEVENTY-THIRD YEAR

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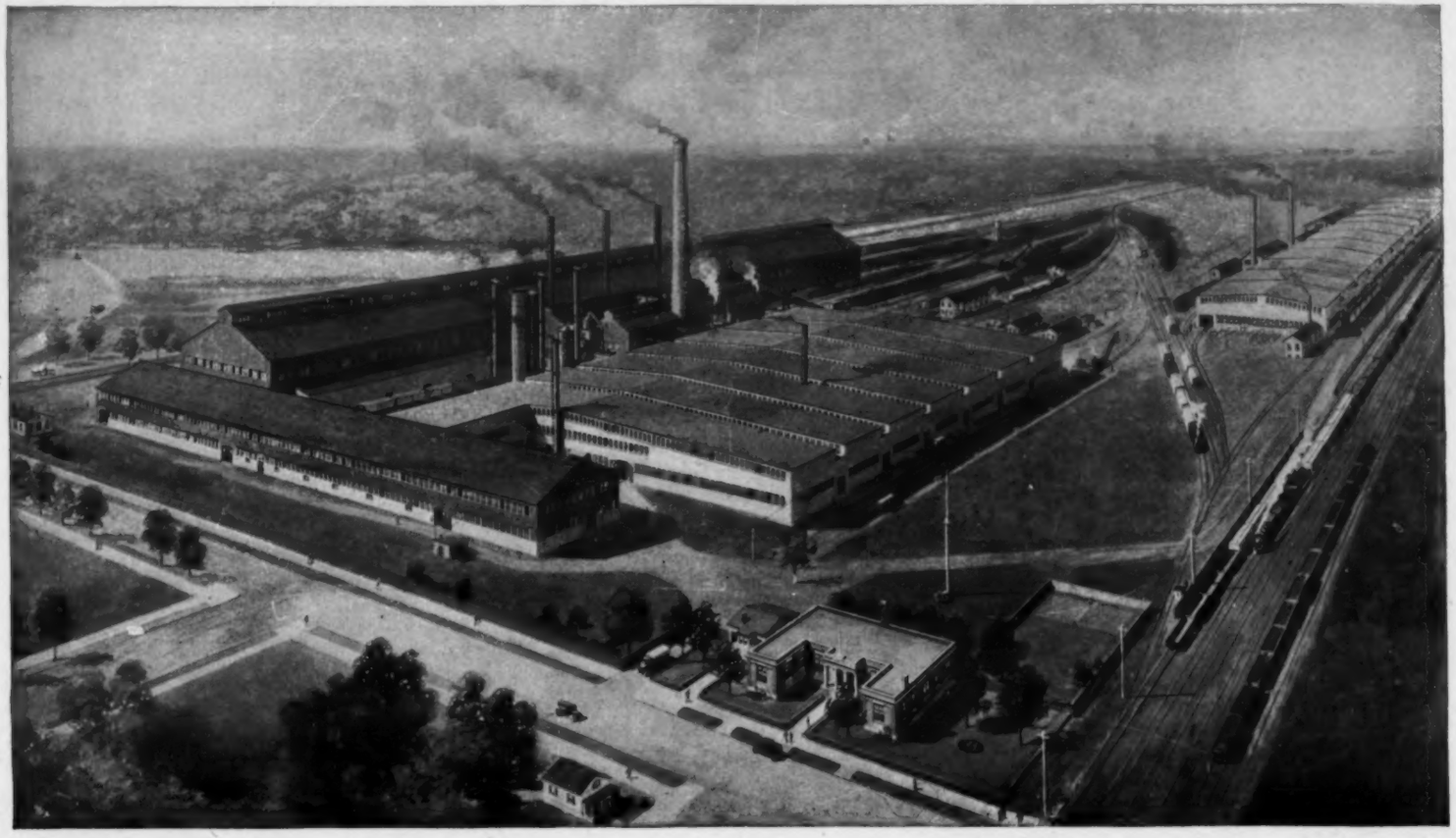

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Published weekly by Simmons-Boardman Publishing Company, 34 North Crystal Street, East Stroudsburg, Pa. Application made for entry of the second class at the post office at East Stroudsburg, Pa., January 14, 1928, under the act of March 3, 1879.

Railway Age

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Published every Saturday by the Simmons-Boardman Publishing Company, 34 North Crystal Street, East Stroudsburg, Pa., with executive offices at 30 Church Street, New York.

Simmons-Boardman Publishing Company, 30 Church Street, New York

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SAN FRANCISCO: 74 New Montgomery St.

The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.).

Subscriptions, including 52 regular weekly issues and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free; United States, Mexico and Canada, $6.00. Foreign countries, not including daily editions $8.00.

Subscriptions for the fourth issue each month only (published in two sections, the second of which is the Motor Transport Section) payable in advance and postage free; United States, Mexico and Canada, $1.00; foreign countries, $2.00. Single copies, 25 cents each.

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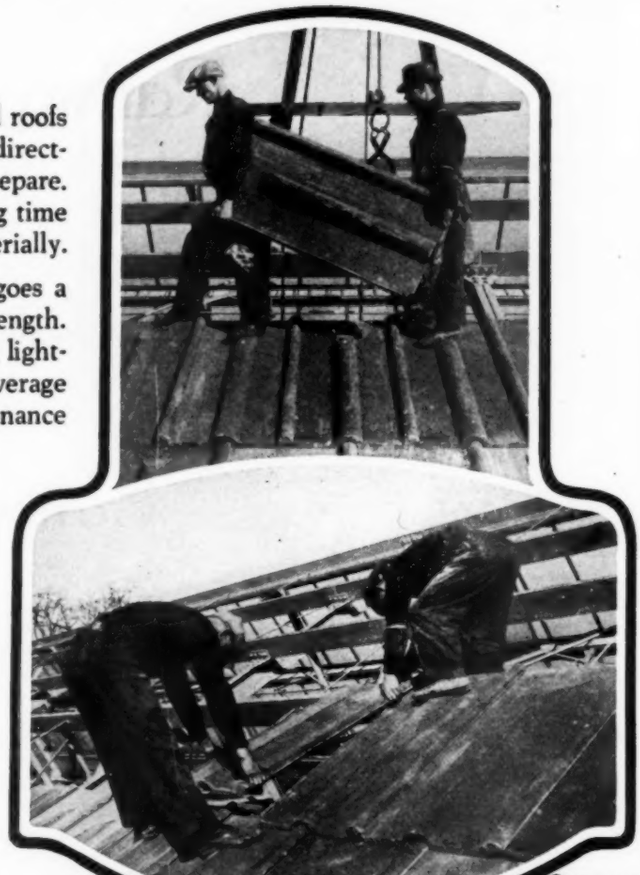

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Railway Age

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Yard Reports as Aids to Efficient Operation

MODERN operation on busy railways requires the construction of huge yards, in which the cars may be classified and otherwise handled. However, unless great care is taken, the very size of such yards is likely to prove a handicap to efficient operation. A yard that is seven miles long and a mile or two wide presents many hiding places into which cars may get and be delayed. This is simple enough, but such supervision of large facilities, unfortunately, is not to be had merely for the asking. The New York Central has evolved means for aiding in the supervision of its Selkirk yard, near Albany, N. Y., which have proved most successful. As described elsewhere in this issue, a comprehensive system of reports covering every phase of the operations is rendered by the yardmasters. In addition, all movements in the yard are controlled by director yardmasters, whose duties are, in effect, those of yard dispatchers. The system of reports provides the trainmaster and general yardmaster in charge at Selkirk with a complete daily picture of the yard. This, added to their personal observations on the ground, gives them ample means wherewith to supervise the yard properly. A glance at the time savings effected at Selkirk since this system has been operating is convincing as to its efficiency.

Paying Freight Handlers on Tonnage Basis

THE practice of paying freight handlers at stations and transfer platforms in proportion to the tonnage handled, rather than a flat rate, is growing rapidly. In every instance where this system has been installed scientifically and without favoritism, an immediate and permanent increase in the amount of freight handled per crew has been noted. Theoretically, perhaps, a freight handling crew should work at its maximum capacity, without any other incentive than that supplied by the regular wages. Unfortunately, this rarely if ever happens in actual practice. There are nearly always a sufficient number of malingerers to cause disaffection and dissatisfaction among the entire force. Under the payment-for-tonnage plan, such inequalities are quickly ironed out. The added incentive afforded by the opportunity of earning more money results in the men supervising themselves very largely, and the loafers are soon eliminated. The likelihood of increased damage due to the acceleration of operations should not be overlooked where such a plan is installed, but proper supervision will minimize this danger. In fact, at the Lehigh Valley's transfer platform at Manchester, N. Y., and the Chicago Junction's freight station at Chicago, where the tonnage plan is in effect, it has been found that, after the installation of the plan, the damages actually decreased, attributable no doubt, to the increased interest the men were taking in their work.

Draft Gear Slack a Serious Problem

THE average slack between any two freight cars in American railroad service is said to be nine inches. It is due to lost motion in worn coupler knuckles, slack and travel in the draft gear itself, and displaced draft lugs or stops. On a 100-car train, this means 75 ft. or more of slack which runs in or out, frequently with the most damaging results. Gages are provided to establish the limit of coupler wear and a fairly high standard of maintenance obtains with regard to this feature, but the same cannot be said of draft gear conditions. In too many cases, cars are taken into repair shops after extended service periods and everything thoroughly overhauled except the draft gears, which receive little more than casual attention as long as all of the parts seem to be in place. Springs may have taken a permanent set, friction parts may be badly worn and only a fraction of the original draft gear capacity may remain, but as everything looks all right the gears are not disturbed. To illustrate how this works out, records show that in one case a car was shopped four times in one month for new draft sills before it was discovered that the real cause of the trouble was defective draft gears. How many of the enginemen involved were unjustly disciplined for mishandling this car? It is important to give draft gears as well as other parts of a car a thorough overhauling at general shopping periods. At intermediate shoppings, much can be accomplished by critical inspection and by keeping the amount of slack within close limits, particularly between the draft gear itself and the stops or lugs.

The Dispatcher and Rough Handling

IN connection with the work recently begun to secure co-operation between the operating and freight claim departments to prevent rough handling, the dispatchers should not be overlooked. When trains are moving over the division smoothly and on schedule time, there is little cause for claims. The safe way of handling trains is to have orders and instructions ready at the point where they are to be delivered, as far in advance as possible. The placing of orders at the last minute, necessitating an abrupt change from a clear board to a red board is productive of injury to passengers and employees and of

damage to lading. Another fruitful source of injury and damage is the practice of flagging trains after they have cleared stations. Of course, in emergencies, this practice must be indulged in, but it is far better, for example, to delay an inferior train a few minutes than to incur the risk of damage or injury by flagging the superior train after it has once cleared the station. One does not have to go far to find examples of this. Not more than three weeks ago the writer observed a case in point. A train had started to pull out of a station, when the dispatcher told the operator to flag the caboose and have the air pulled. The air was duly pulled and so were a couple of draw-bars; a car of flour was scattered over the right-of-way and a brakeman seriously injured. All this resulted from the dispatcher trying to help a train proceeding in the opposite direction. The result was that both trains were tied up several hours. Such practices are not conducive of good railroading; dispatchers may aid in reducing rough handling by avoiding them.

Night Schedules to Improve Air Mail Service

SEVERAL changes soon to be made in the schedules of air mail planes will greatly improve the service which they render. The first such change will be the conversion of the Chicago-Dallas, Tex., air mail route from a day to a night operation, which will take place on February 1, the lighting of this route having been completed. Under the new schedule first morning delivery of mail and express between Chicago and Dallas will be offered, instead of second morning delivery as at present due to the overnight wait at each end of the line before departure and delivery. Between New York and Dallas under the new schedule, mail and express leaving New York in the morning will be delivered in Dallas and other points along the air mail line in the southwest the following morning, while matter leaving Dallas in the evening will be in New York the following afternoon. Another important change in schedules soon to be made will affect the transcontinental route between New York and San Francisco. Under present schedules the planes leave New York and San Francisco in the morning arriving at the opposite ends of the lines late the following afternoon, with resultant overnight delays in departures and deliveries at both terminals. Under the new schedule planes will leave New York and San Francisco at night arriving at their destinations the second morning, making the same flying time across the continent but speeding up the service by eliminating the terminal delays. The new transcontinental schedules will benefit also the cities on other connecting air mail routes, the schedules of which will be altered to conform with the new transcontinental schedule. Night flying of mail and express is a logical development and will become more common as the lighting of more of the airways is completed by the Department of Commerce.

"Educational" Excursions a Success in England

IN ENGLAND the Great Western has introduced a new type of low rate excursion which is proving extremely popular with its patrons. It is called the "educational" excursion and consists of a one-day round-trip to some point of industrial or cultural interest, time being given at the destination for a tour of inspection with competent guides. The first of these excursions were run to the railroad's own shops at Swindon, 77 miles from London. For this trip, for which a very low rate was made, demands for tickets were so great that the company was forced to stop their sale a day prior to the excursion. Subsequent "educational" excursions have proved as successful. Recently the company ran one from London to Bath, 107 miles, at which point an inspection was made of the ruins of the ancient Roman baths, followed by a visit to the large printing establishment of Sir Isaac Pitman & Sons. Other similar excursions are planned for the future. For these excursions the company provides modern equipment, including dining cars, and operates the trains at speeds comparable to those of its scheduled limited trains. This would seem to be necessary, since such excursions naturally have their principal appeal to a rather high type of passenger. We wonder if perhaps the Great Western's success with these trains could not be emulated in this country—particularly around the larger centers of population. There is a keen interest on the part of a large section of the public regarding processes of leading industries. Moreover many of these industries would undoubtedly welcome such inspection trips because of their advertising and good-will value and would be inclined to co-operate with the railroads in every way. There is a tendency in some of the more progressive schools to teach their pupils by letting them see industry at work rather than merely by forcing them to read about it. Those in charge of such institutions would doubtless welcome an opportunity afforded by the railroads to extend their inspection trips over wider areas.

A Catechism on Railroad Valuation

CONGRESSMAN Homer Hoch of Kansas has been quoted in the newspapers as having in a recent speech in Boston "'solemnly warned" the railroads "against inviting the return of hostile public opinion," by seeking among other things, a "revaluation" of their properties based on the cost of reproduction. According to reports, he said the policy favored by the railways would raise their valuation from about 20 billion to about 40 billion dollars, that the greater part of the industries of the country could not stand the burden of a freight rate increase sufficienit to pay a return on that increased valuation, and that the "attitude of the railroads indicates lack of regard for public opinion and public interest and exposes the country to the dangers of a return to general animosity against the railroads."

This, in substance, is being said by many other persons, and it disregards the history of valuation and misrepresents the probable effects of a valuation made in accordance with the principles for which the railways contend. In order that the public may be better informed we present the following catechism on valuation.

Did the railways ever ask for a valuation of their properties? They did not. They consistently opposed legislation providing for a valuation upon the ground that it would not be a practical or a sound basis for the regulation of rates.

Who did advocate a valuation? Its principal advocates were the late Senator Robert M. LaFollette of Wisconsin and the Interstate Commerce Commission.

Who was the principal author of the valuation law passed in 1913? The late Senator LaFollette, who was

for years the most persistent and bitter critic of the railways in public life and who ran for president in 1924 on a platform advocating government ownership.

Who first advocated cost of reproduction as the principal basis of valuation of railways? History indicates that its first important advocate was the late William Jennings Bryan, enemy of the "money power," and an advocate of government ownership. Appearing as an attorney in the Nebraska rate case (Smythe vs. Ames) about 30 years ago, he contended that "the present value of the roads, as measured by the cost of reproduction, is the basis upon which the profits should be computed."

Why did Mr. Bryan and other public men and lawyers at that time and for some years later successfully advocate recognition of cost of reproduction as a factor in railroad valuation? Because for some years previously wages and prices had been declining and, in consequence, they believed a valuation based on cost of reproduction would be less than one based on actual investment.

What does the LaFollette valuation law, under which the valuation is being made, say about cost of reproduction? It requires the Interstate Commerce Commission to "ascertain and report in detail as to each piece of property, other than land, * * * the original cost to date, the cost of reproduction new and the cost of reproduction, less depreciation," and "other values and elements of value, if any."

Why do the railroads contend that in making a valuation weight must be given to present cost of reproduction? Because the Supreme court of the United States has so held in a series of decisions extending over a period of 30 years, and because it is required by the LaFollette valuation law.

How long was it estimated when the LaFollette law was passed that it would take to make a valuation, and how long has the work been under way? Senator LaFollette estimated that it would take three years. The Interstate Commerce Commission, after the law was passed, estimated it would take from 5 to 7 years. The work has now been under way more than 14 years and is not yet finished.

How much was it estimated the valuation would cost and how much has it cost thus far? Senator LaFollette estimated it would cost $2,400,000, and the Interstate Commerce Commission, just after the law was passed, estimated it would cost the government from $10,000,000 to $15,000,000. Up-to-date it has cost the government more than $30,000,000, and the railroads more than $100,000,000.

How much, and why, have railway rates been advanced since the valuation law was passed? The average revenue per ton per mile of the railways is now about 49 per cent higher than in 1913. But valuation has had nothing to do with this increase, because the railways are now earning a smaller percentage of return on their investment than in 1913. The increases in rates have been made necessary entirely by advances of 162 per cent in the average hourly wage of railway employees; of 200 per cent in railway taxes and of 50 per cent or more in the prices railways have to pay.

Have the Interstate Commerce Commission, Congressman Hoch and other statesmen said or done anything, or are they saying or doing anything now, to prevent increases or cause reductions of the wages and taxes that have made past advances in rates necessary? No. Operating expenses and taxes consume over 80 per cent of the earnings of the railways, and advances in them are entirely responsible for the increases in rates that have been necessary; but the Interstate Commerce Commission and statesmen who worry about the effect of valuation on rates never lose any sleep worrying about the effect of advances in wages and taxes.

Where do Congressman Hoch and others get their estimate that a valuation which gave weight to cost of reproduction would amount to 40 billion dollars? They alone know. Even the Interstate Commerce Commission's estimate, on the basis of costs in 1923 was almost 9 billion dollars less than this.

How much of an average advance in rates would be theoretically justified by an increase of 25 to 50 per cent in the valuation on which rates are now based? An increase of 25 per cent in valuation would theoretically justify an advance in rates averaging about 5 per cent, and an increase of 50 per cent would theoretically justify an average increase of rates of about 10 per cent.

If the railways should get a higher valuation would they be allowed to charge rates that would enable them to earn the so-called "fair return" of 5¾ per cent on it? This hardly seems probable, in view of the fact that the Interstate Commerce Commission has for eight years prevented them from charging rates that would yield such a return even on the tentative valuation on which rates are now supposed to be based.

Why, then, do the railways persist in seeking a valuation giving weight to present day costs? Because the law of the land requires it and because they believe the method of valuation favored by the Interstate Commerce Commission is unlawful, confiscatory and if upheld by the courts would prevent them from earning sufficient net returns to enable them to furnish the country with good and adequate transportation.

If it is undesirable that a lawful valuation shall be made why does not Congress repeal the law providing for it? On the other hand, if a valuation is so desirable that the law providing for it should be kept in effect, why criticize and "warn" the railways for insisting upon it being made in accordance with what they understand the law to be? Let those who do the criticizing and warning answer this.

The Hoch-Smith Resolution

THERE has been no better illustration of the tendency of government regulation of railways to become excessive and to base freight rates on temporary conditions and unsound principles than has been afforded by the passage by Congress of the Hoch-Smith resolution, and by subsequent efforts of the Interstate Commerce Commission to find some way to adjust all the freight rates of the country in accordance with the provisions of that resolution.

The Hoch-Smith resolution was passed just about three years ago. It was evident then that Congress had given no real consideration to the amount of work it would impose upon the commission, the shipping public and the railways, or to the effects it would produce if carried out in accordance with its apparent meaning. The resolution seemingly was meant to require the adoption of a new policy in rate regulation. It required the Interstate Commerce Commission in adjusting freight rates to consider "the conditions which at any given time prevail in our several industries * * * insofar as it is legally possible to do so." It referred to the "existing depression in agriculture" and required the commission with the least practicable delay to fix "the lowest possible lawful rates (on products of agriculture) compatible with the maintenance of adequate transportation service." How little consideration Congress actually gave to the resolution is illustrated by the fact

that it was passed by the Senate without a word of discussion.

The effect it has had upon the work of the commission is shown by statements made by Commissioner Esch in testifying before a committee of Congress last week. The commission now has on its docket over 2800 formal cases, or approximately two years' work. Its disposition of cases has been greatly interfered with because no less than 16 of its most experienced examiners are devoting practically all their time to the rate-structure investigation required by the Hoch-Smith resolution. In 1925 it had 70 examiners, while now it has 116, an increase of almost 70 per cent; and yet it is getting farther behind with its work.

An "Emergency" Measure

The Hoch-Smith resolution was passed to deal with an emergency situation in agriculture, but, although three years have passed and a huge amount of testimony has been taken, the rate-structure investigation required by it is just getting well under way. There is no reason why this should cause surprise; nor is it discreditable to the commission. The freight rate structure of the United States is so vast and intricate that no more rapid progress could reasonably have been expected. Meantime, not only is the disposition of many cases that are important to the railways and the shipping public being prevented, but shippers and the railways as well as the commission are being put to great trouble and large expense in making a record containing thousands upon thousands of pages of testimony which it will be physically impossible for the members of the commission ever to read and digest.

What is the commission going to do with all the vast amount of information being accumulated in the record of its Hoch-Smith investigation after it has it? The resolution was passed solely because of the conditions in agriculture that existed for a few years previously. There have been great changes since then. Every kind of evidence bearing upon the subject shows that agriculture is now better off, as compared with other industries, than it was three years ago. The purchasing value of farm products was at a higher level in 1927 than in any year since 1921. The value of 50 farm groups is estimated by the Department of Agriculture to have been 635 million dollars larger in 1927 than in 1926. Is the commission always to proceed in future upon the assumption that conditions in agriculture are relatively the same as three years ago and permanently to make upon farm products the "lowest possible lawful rates"? If so, are the railways, which are now earning relatively the lowest net returns within three years, to have their net returns reduced by reductions in rates on farm products, or are the reductions in rates on farm products to be immediately compensated for by advances in rates upon other commodities? Strong opposition to advances in rates on other commodities is sure to be encountered, if attempted, because the prices of farm products are now relatively as high, as compared with pre-war prices, as, on the average, are those of other commodities.

The Hoch-Smith resolution is unsound in every respect. It is one of the most dangerous pieces of legislation affecting railways ever passed. It was inevitable that if the commission tried faithfully to carry it out the result would be the clogging of its machinery. Its purpose is to redistribute the burden of freight rates according to the conditions of prosperity or otherwise, that exist in different industries, and especially to help agriculture. But why should the rates of the railways, any more than the prices of any other industry, be adjusted according to the conditions of prosperity or depression existing in other industries? Railway rates are only a very small factor in determining the prosperity of the industries on whose products they are paid. If, because an industry is unprosperous, the railways are to be required to give it especially low rates, why should not all other industries be required to charge it especially low prices? It would be just as economically unsound to pass a law requiring manufacturers to make farmers especially low prices for automobiles as it is to require railways to make them especially low freight rates.

"Scientific" Rate Reconstruction

Representative Hoch of Kansas, one of the authors of the Hoch-Smith resolution, said in a speech the other day that he wants "a scientific survey and reconstruction of the freight rate structure" and that this is aimed at by his resolution. Why, then, did not his resolution provide for a "scientific survey and reconstruction"? It plainly contemplates reductions of the rates of some industries because they are depressed and advances of the rates of other industries because they are prosperous. But suppose, as is not at all unlikely, that after the commission has got the rates thus adjusted, industries that are now depressed become prosperous and industries that are now prosperous become depressed. Apparently, on some of the principles of the Hoch-Smith resolution it would immediately become the duty of the commission to advance many of the rates it had reduced and reduce many of the rates it had advanced, while on other principles of the resolution it would be its duty permanently to maintain the "lowest lawful rates" on farm products. Assuming the former principles are to apply, is it "scientific" to base freight rates on ephemeral conditions and constantly to juggle them as these conditions change? Is it scientific to base rates on the constantly changing conditions in an industry entirely regardless of whether freight rates have anything to do with these conditions or with the changes that occur in them?

Unsound Basis for Rates

There is no justification whatever for fixing the freight rates charged upon the commodities produced by different industries in accordance with the profits being made in those industries. The general level of rates should be such as to enable each group of railways, under efficient and economical operation, to earn a fair annual return upon the aggregate value of their properties. In determining the rates that should be charged upon different commodities great weight should be given to the comparative costs incurred by the railways in rendering the service of transporting them. Weight should also be given to the value of the various commodities, because it is the principal factor that determines the rates per mile that they can bear. Transportation and market competition should be considered. If these various factors are given due weight rates will be fair as between different commodities, producers and markets, and if producers in a particular industry or territory cannot profitably do business on them it will be due to other causes than rates. Largely to ignore such conditions and factors, and attempt to fix rates according to differences in the prosperity of different industries, regardless of the reasons for them, is indefensible, and the more it is attempted the more confusion and harm it will cause.

Instead of efforts being continued to carry out the Hoch-Smith resolution, it ought to be repealed. But politics dictated its enactment, and politics probably will keep it in existence until costly experience compels its repeal.

The Center of Selkirk Yard. The General Office is in the Right Foreground

Comprehensive Reports Speed Yard Operations at Selkirk

Movements of all cars through N.Y.C. yard are checked in detail to determine responsibility for delays

THE average terminal time per car eastbound has been reduced, in one year, from 10 hr. 3 min. to 6 hr. 27 min., at the gravity yard of the New York Central at Selkirk, N. Y. This has been accomplished by continuous and comprehensive analysis of efficiency and cost statistics, which are prepared currently and analyzed by the trainmaster and general yardmaster daily. These cover all of the yard activities in detail and are prepared in such a manner as to enable the supervisory force to determine at once where the responsibility lies for any delay to a car or group of cars.

The terminal time on the westbound movement has shown a slight increase, but this is due entirely to the fact that, in 1927, car retarders were in the course of installation in the westbound classification yard and operations were hampered during the construction period, as the contractors were working on 25 per cent of the track at one time. Despite this temporary handicap, however, the average terminal time westbound was only 14 hr. 47 min. during the period of a month, while the grade of the hump was being changed and other construction activities were in progress.

A Typical Fast Freight Movement

Most of the perishable and other fast freight moving eastbound through Selkirk is not put over the hump, the trains having been pre-classified at DeWitt yard, the next terminal point west of Selkirk. The work done at Selkirk consists of inspecting the trains in the regular manner, also inspecting all cars of perishables to ascertain the condition of their ventilation and refrigeration, icing such cars as require it, and a certain amount of cutting out and filling in of cars.

A typical movement of such a train was observed on September 25, 1927. The train arrived at Selkirk at 11:30 p. m., with 84 cars, 3,273 tons. It was necessary to inspect 24 cars of perishables, 6 of which were found to need icing. Icing was started at 11:35 p. m. The car inspectors started on the train at 11:55 p. m., at which time the last spot of the train was made for icing, and completed their inspection at 12:15 a. m. In the meantime, nine cars were set off the head end and the two rear cars were switched out, while a carload of automobiles was added. The outbound engine was placed on the train at 12:15 a. m. and the train left the yard at 12:25 a. m., or an elapsed time of 55 min. between arrival and departure.

The movement of bad order cars through the yards is also checked in detail. During a typical 31-day period, August 25 to September 24, 1927, 908 eastbound loaded bad order cars were repaired at Selkirk, with an average terminal delay of 20 hr. and 10 min. per car. During the same period, 222 westbound cars were repaired, with an average terminal delay of 23 hr. and 43 min. per car. An example of what can be done in cases of necessity was observed at Selkirk when the car repair forces changed a pair of wheels under a refrigerator car, and it was sent out in the same train in which it arrived, the car and the train in which it was

having been in Selkirk yard just 45 minutes.

Selkirk yard is situated about eight miles south of Albany on the Castleton cut-off of the N. Y. C. This cut-off was built to avoid the necessity of handling freight through Albany proper and it is used for freight traffic exclusively. As has been described in previous articles, the construction of this cut-off has had the result of greatly reducing the terminal delay on all cars. As a result of the efficiently supervised operation at Selkirk, this time saving has been steadily increased,

Two Modern Engine Houses Serve the Yard and Terminals

until now from 8 to 26 hr. are saved on every car moving over the cut-off and through Selkirk yard, as compared with the prior movement through Albany.

Traffic Through Selkirk

The business handled at Selkirk averages over 4,000 cars a day. Eastbound business is delivered from the New York Central proper and from the West Shore, these two lines being practically parallel from Buffalo to Albany. Westbound business is received from the New York Central proper, which runs along the east bank of the Hudson river from New York to Albany, from the West Shore, which runs along the west bank of the Hudson from Weehawken, N. J., to Albany, and from the Boston & Albany, which serves central Massachusetts and Boston. Westbound cars from the N. Y. C. and the B. & A. are brought into Selkirk over the Castleton cut-off, which crosses the Hudson on the A. H. Smith Memorial Bridge, while westbound cars from the West Shore River division are delivered at a junction point at the east end of the yard. The same movement, in the reverse direction is followed on eastbound cars outbound for the N. Y. C., B. & A. and W. S., while westbound cars move out over both the N. Y. C. and the W. S. for Buffalo, intermediate stations and points beyond. The preponderant loaded movement is invariably eastbound.

The yard layout is shown in the accompanying diagram, from which it will be observed that straight-line operation is carried out on all movements through the yard. A summary of the trackage and capacity of the various component yards is given below:

Yard	No. of tracks	Car capacity
Westbound receiving	15	1,045
Westbound classification	24	1,857
Westbound re-classification	8	160
Westbound departure	13	1,464
Eastbound receiving	8	968
Eastbound fast freight	5	419
Eastbound classification	21	1,647
Eastbound re-classification	7	109
Eastbound departure	15	1,014
Car repair	11	308

The yard is also equipped with modern and complete mechanical facilities, including a car repair shop and an engine terminal consisting of two engine-houses, one with 32 stalls and the other with 30, a power house, a coaling plant and a sanding plant. A well-equipped ice-house is also maintained in connection with the yard.

The Power Assignment

The yard is operated in three shifts, with 44 engine jobs. The following is the regular engine assignment for each trick:

Assignment	7:00 a. m.	3:00 p.m.	11:00 p.m.
Eastbound hump	0	1	2
Eastbound classification yard	4	5	5
Eastbound departure yard	2	2	2
Westbound hump	2	2	2
Westbound classification yard	1	1	1
Westbound departure yard	3	3	3
Engine house	1	0	0
Car repair yard	1	1	0

While this is the regular power assignment, it is controlled, of course, by the necessities of the traffic moving. Frequently, at the end of the week it is necessary to call out additional locomotives to shove cars over the westbound hump, also to pull cars from the classification yard. Similarly, it is necessary frequently to follow the same procedure in the eastbound yards during the early part of the week.

This assignment was planned so as to permit the working of the locomotives continuously through two shifts, so far as the jobs permit. Ordinarily, the crews change on the ground. When an engine has been in service in the yard for 16 hours, it is run to the engine house by the crew, who take out another engine that has just received engine-house attention. Of course, this "endless chain" operation cannot be carried out on the engine house job or the car repair yard job, where locomotives are not used on all three shifts, nor can it be used on the extra engine jobs. However, the increased power utilization made possible by this means is such that all of the regular 44 jobs and the extra jobs are now being protected adequately with only 25 yard engines.

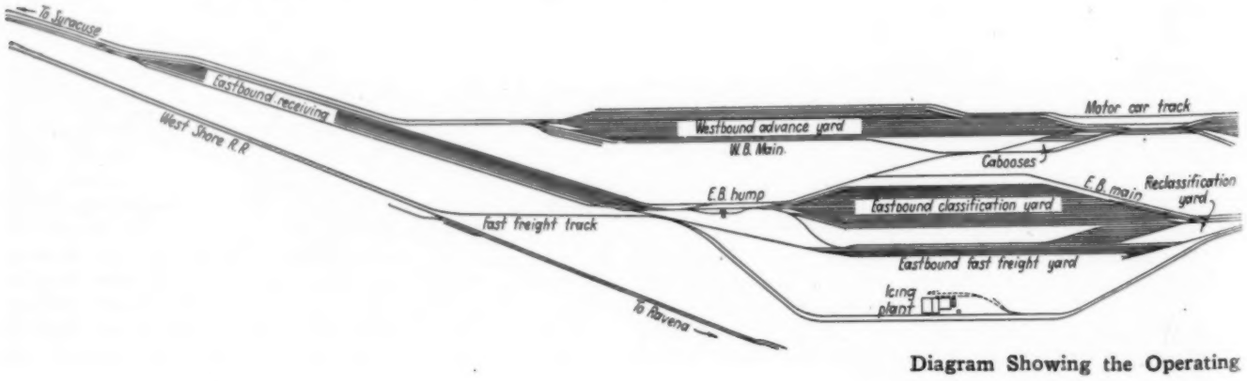


Diagram Showing the Operating

All of these locomotives are of the "U" type, with the exception of four Mallets used in humping service and a trimmer engine of the "B-10" type. The "U" type locomotives have eight drivers, the weight on drivers being 219,000 lb.; the "B-10" type six drivers, and the weight on drivers 158,000 lb.; three of the Mallets have sixteen drivers, with a weight on drivers 466,000 lb.; while one Mallet has twelve drivers, and a weight on drivers 363,000 lb.

An interesting experiment is being conducted as to the uses of radio in a hump yard. Radio sending and receiving sets have been installed in the cab of one of the humping locomotives and in the hump yardmaster's office, so that verbal communication is established and the humping operation may be conducted without the aid of signalling. The installation has not yet been in service a sufficient length of time to enable final judgment to be passed on it, but the results so far have been satisfactory.

All Yard Movements Controlled

The facilities at Selkirk are unusually large and widespread, as may be gathered from the summary of capacity previously given. Even in a relatively small yard, time wastes and leakages and lack of co-operation in engine movements are quite likely to occur and in a yard of this size the chances are, of course, much magnified. With all the involved locomotive manoeuvers necessary in the operation of the yard, it was felt that, to secure the maximum efficiency, the control of all movements throughout the yard should be delegated to some one person. Accordingly, three director yardmasters were appointed, one for each shift, and every movement within the yard limits is under their direct control. This new departure in yard operation has proved highly successful at Selkirk.

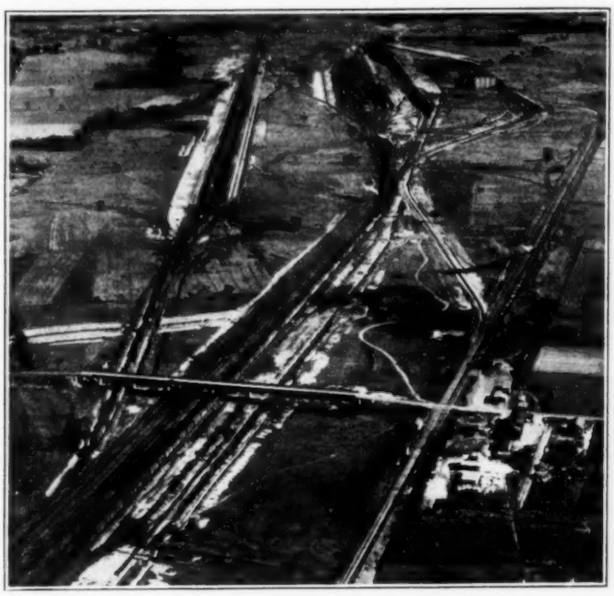
In effect, these director yardmasters serve as dispatchers for the yard. They have before them a form, shown in the accompanying illustration, that corresponds to a dispatcher's train sheet, adapted to the needs of yard operation instead of road movements, and they are in constant communication by telephone with all parts of the yard. Space is provided on this sheet for the entry of all information necessary for the control of yard movements. All changes in the yard situation are entered currently throughout each director yardmaster's tour of duty, so that any officer may come to Selkirk at any time and, by a glance at the worksheet, be apprised of the exact situation existing at that time.

The director yardmaster is charged with the responsibility of calling all yard crews and also road crews for trains leaving the yard. In addition to the regular records maintained in connection with the calling of the road crews for outbound trains, a yard crew calling sheet is kept, which gives the names of the men assigned to the various jobs each day, divided into groups corresponding with the various sections of the yard. This sheet shows where every man is working at all times, as well as the number of extra men not working on regular jobs, who are, however, available for call.

Another important duty of the director yardmaster is to control the "endless chain" system of yard engine utilization previously described. The director yardmasters carry on their sheet a record of the time when each locomotive is due for engine-house attention and issue orders to the crews accordingly. To aid the director yardmasters in determining the assignment of power and crews in advance, consists giving the complete make-up of trains enroute to Selkirk are telegraphed from the other yards in advance.

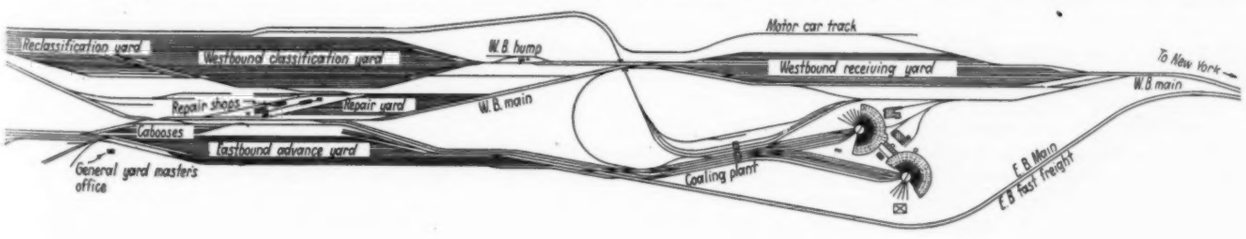
Yard Situation Reports

A comprehensive system of daily yard situation reports is prepared by the director yardmasters and the yardmasters in charge of the various yards. These reports enable the trainmaster and general yardmaster in charge of Selkirk to know the situation currently and determine at once where the responsibility lies for any delays. The general yard situation report is prepared every eight hours and is on the desks of the trainmaster and the general yardmaster immediately after the conclusion of each trick. It shows in detail just how many cars are in each track throughout the yard and to what points these cars are destined.



View of the Yard from the Extreme West End, Looking East

Separate situation reports are prepared for both the east bound and westbound classification yards, which are sent to the office at the close of each 24-hr. period. These reports are divided into sections so as to show the detailed activities of each trick separately. If a yardmaster is not clearing the tracks and moving the



Layout at Selkirk Yard

cars promptly, this situation is reflected immediately on these reports. For example, a car may be humped prior to midnight. If it has not left the classification yard by the end of the trick, or 8 a. m., the yardmaster in charge of that trick is asked to explain why, as it is a rule at Selkirk that classification tracks must be cleared at least once every eight hours, while a number of these tracks are cleared every two hours.

The rendering of these reports, with the resulting increased opportunity for detailed supervision, has had much to do with the increased efficiency of operation at Selkirk. The yardmasters in charge of the various operations know that any failure on their part is immediately apparent and the responsibility clearly fixed at once. Conversely, they know that any good work on their part is also reflected in the reports immediately. Thus they have additional incentives for doing the best work possible under all conditions. Supervision is materially facilitated since both the general and the detailed situations are reflected at frequent intervals, and if a delay occurs to any one car or group of cars, the responsibility may be fixed at once, without having to make an extended investigation.

Terminal Delays Reduced

The director yardmaster in charge of each shift renders a report on delays encountered during his tour of duty in getting trains out of Selkirk. This report shows eastbound and westbound trains separately as to divisions and gives the number of trains, total delay and the average delay per train. For the week ending October 2, the average delay per train was 7 min. westbound and 8 min. eastbound.

This remarkable showing is attributable to two causes: First, the placing of the entire responsibility in the hands of the director yardmasters, and second, enabling a check to be made of relative performance by means of this report. The director yardmasters, of course, are familiar with their relative daily performances, but this is carried further by posting notices where all the employees may see them, showing the relative performances of each shift in this regard. By this means a spirit of healthy rivalry has grown up between the shifts and a more concerted effort is made by the men and their supervisors to avoid such delays.

The Fast Freight Movement

Normally, the eastbound manifest, or "24-hour trains, fast freights" as they are known on the N. Y. C. do not pass over the bump. These trains are practically all pre-classified at De Witt, as previously explained. The dispatchers west of Selkirk telegraph the consist of these trains and their probable arriving times to the director yardmaster at Selkirk, 2 hr. 30 min. before the trains arrive. The director yardmaster then arranges for all necessary work that will have to be done upon arrival, estimates the time it will take, and calls an outbound road crew for a departure time based on this estimate. Since the director yardmaster knows the make-up of the train, he is able to line up the yardmasters on the ground as to what cars are to cut out and where the cut is to be made. The cars to be filled in are lined up, inspected and made ready to be grouped in the train as soon as it arrives in the yard.

As soon as the train arrives it is inspected and the cut-outs and fill-ins made. If, as is usually the case, it contains loaded refrigerator cars requiring icing, it is taken to the ice plant where refrigeration inspection and icing takes place. The road engine is attached immediately after the inspection is completed, taking sufficient time to test the air, after which the train leaves the yard on a thoroughfare track which does not conflict with other yard movements in the east end of the yard.

The scheduled yard time for fast freights at Selkirk is 1 hr. 30 min., but this time is invariably bettered. In fact, a check of over two weeks indicates that the average yard time was approximately one hour.

An interesting example of high speed operation in connection with moving these fast freights through Selkirk is found in the handling of boxed automobiles loaded on flat cars. Some of the fast freights contain as many as 15 or 20 carloads of this class of traffic, many cars of which are too high to comply with the clearance limits east of Selkirk. The excess height is seldom more than two or three inches, and it has been found that by removing some of the wooden cross-pieces and applying steel bands, the lading is just as well protected, and the cars then comply with the clearance limitations. A flat car is equipped with these bands and when the advance consist indicates that such cars are on an incoming train, the band car is lined up with an engine. As the train comes into the yard, the band car is run along an adjacent track, the wooden cross pieces are removed and the steel bands are applied, without switching the cars from the train or delaying the train at all. As many as 15 cars have been given such attention in one train, during the time the train was being inspected and iced, without any delay to the train.

From ____ M. To ____ M. **SELKIRK YARD SITUATION** Date ____ 1927

YARD POWER IN SERVICE				Track	EASTBOUND RECEIVING YARD	No.	WESTBOUND RECEIVING YARD	TRAINS ENROUTE
Engines	On Duty	Coal Dock	Yard	1		1		B. & A.
WESTBOUND BUMP				2		2		
				3		3		
				4		4		
WESTBOUND CLEAR AND ADVANCE				5		5		
				6		6		
				7		7		
				8		8		
WESTBOUND HELPERS					ICE HOUSE	9		MOHAWK DIVISION
				1		10		
				2		11		

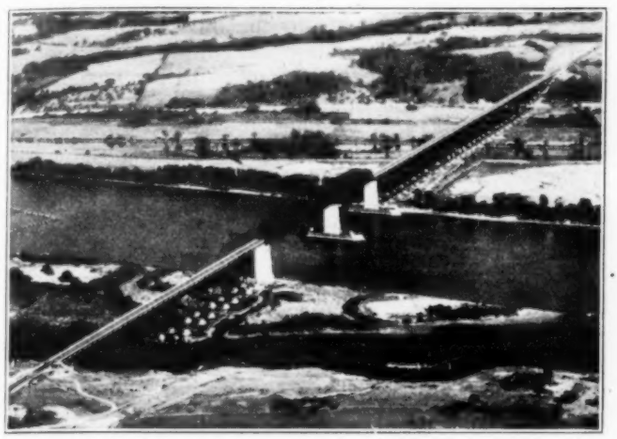
The Form Used by Director Yardmaster in Controlling Yard Movements

These trains are never delayed for billing. As soon as they arrive, the bills are delivered to the yardmaster. He has ready all billing for cars to be filled in and he sorts out the bills for cars to be cut out. The conductor's report of the arriving train is used as a partial consist of the train departing, together with a consist of the cars filled in.

The car inspection forces are so distributed as to pro-

vide for the maximum flexibility in inspecting the fast freight trains. Normally, all inspection is done at the icehouse, but if three more trains are due close together, the first two trains are iced and pulled to the advance yard for inspection, so as to get them out of the way before the third or fourth trains arrive at the icehouse. The icing is done under contract by an outside company and is unusually efficient, the average icing time per car is only 1¼ min.

The movement of manifest freight through the yard is covered by a fast freight report, rendered every 24



The A. H. Smith Memorial Bridge Forms the Eastern Entrance and Exit

hours, which gives in detail the time required for each successive step in the operation of putting the train through the yard, divided as between eastbound and westbound trains. Like the other reports, it fixes the responsibility for all moves made by these trains through the yards and has been of material assistance in time studies and checking the movement of the fast freights, to determine what operations were capable of being accelerated.

Daily Cost Statement Made

Assistance is rendered in controlling yard expenses at Selkirk by a daily estimate of yard pay-roll expenses, rendered in conjunction with a summary of the daily performance record of the yard. This report shows the number of cars handled daily, with the cumulative total for the month and gives a daily estimate of the daily pay-roll expense, divided to show the totals for the various classes of labor employed. It gives the cost per car handled, the yard engine hours and the cars handled per engine hour. Comparisons are given for all of these figures with those of the preceding month and of the same month for the preceding year.

This report enables the supervisors to make daily cost analyses and gives them far better control over their expenses than they would otherwise have, as any unnecessary engine jobs or excess car riders, in fact any unnecessary yard expense of whatever nature, shows up on the report the following day and may be remedied at once.

A check of the operations and cost, made on September 25, 1927, shows that 11.1 cars were handled per engine hour, as compared with 9.9 for the preceding month and 10.3 for the preceding year, while the cost per car was materially reduced. On the same day, the average terminal time per car eastbound was 6 hr. 14 min., as compared with 10 hr. 52 min. on the same day in 1926.

Bad Order Cars Handled Promptly

The record previously mentioned of changing a pair of wheels under a car and getting it out on the same train it came in on, in 45 min., is, of course, unusually fast, but the forces at Selkirk make a specialty of repairing bad order cars and getting them through the yard in good time. The car shop and repair track facilities are modern and well equipped and a sufficient car force is maintained at all times. In addition, special stress is laid upon getting bad order cars on to the repair tracks as promptly as possible and removing them quickly after they are repaired. The general and detailed yard situation reports reflect the movement of bad orders as well as other cars through the yard. Supplementing these are the "cripple" reports, prepared by each yardmaster for the yard under his jurisdiction and a general bad order car report covering the entire yard.

A check made of the handling of loaded bad order cars requiring all classes of repairs, during the 31-day period, from August 25 to September 24, 1927, developed some interesting performance records. A total of 908 eastbound loaded bad orders were repaired at Selkirk during this period, and the average time per car was 20 hr. 10 min. This figure, and those following represent the total time the car was in the yard, not merely the time spent on the repair track. Westbound loaded bad orders totaled 222 during the same period, the average time being 23 hr. 43 min. On September 13, 23 eastbound "cripples" were handled in an average time of 15 hr. 51 min., while on September 24, 8 westbound cars averaged only 13 hr. 40 min. each. The average time on eastbound cars on 12 days and on westbound cars on 8 days during this period was less than 20 hr. The best record for both eastbound and westbound loaded bad orders was made on September 24, when 36 cars were handled in 605 hr. 5 min. or an average of 16 hr. 8 min. per car.

Hearings on Consolidation Bill

WASHINGTON, D. C.

DANIEL Willard, president of the Baltimore & Ohio, testified before the Senate committee on interstate commerce on January 21 in favor of the Fess railway unification bill, although he favored a more definite declaration of policy indicating the intention of Congress to build up groups of roads of substantially equal financial strength. Mr. Willard appeared in response to a request from Senator Sackett of Kentucky for the testimony of an outstanding railway operating executive.

Testimony of Daniel Willard

Mr. Willard said that while he believed some economies would result from consolidations the greatest advantage to be realized would be the creation of systems with ability to serve the public adequately and that the Baltimore & Ohio had taken the position that if there are to be consolidations the Reading and the Central of New Jersey should be grouped with it. If these lines, with one or two small lines were grouped together, he said, it would be possible to develop a shorter route that would enable the Baltimore & Ohio to get into New York without going through Pittsburgh and Baltimore. In reply to questions he said that L. F. Loree thought the eastern situation could be solved by creating five sys-

.ems instead of four but that many others do not agree and that the Baltimore & Ohio's plan for a shorter through route could not be made effective if the Loree plan were made effective.

When Senator Sackett referred to the late Senator Cummins' view that some element of coercion should be injected into the legislation, Mr. Willard said that if consolidation is a good thing it ought to be done but that because of the complexity of the situation a reasonable period should be allowed for voluntary consolidations. If developments later cause the opinion that it still is a good thing but that the railroads have not made sufficient progress it will be time enough to consider some way to bring pressure to bear.

Mr. Willard said he thought consolidations would be stimulated by the passage of such a bill as is proposed and that those who had studied the matter more than he were of the opinion that obstacles would be removed by it. The Baltimore & Ohio had been of opinion that such unification as it desired could be brought about under the present law, but he now accepted the view that additional legislation is necessary.

Testimony of A. P. Thom

Alfred P. Thom, general counsel of the Association of Railway Executives, continued his testimony on the Parker unification bill before the House committee on interstate and foreign commerce on January 19 and 20. He said that the development of larger systems would make possible better service to the public by reducing the number of men who have to decide on important policies and the number of separate interests to be considered. He thought substantial economies should result but said that no one advocating the bill is doing so principally on that ground. He thought consolidation would be a solution of the recapture problem and instead of having the anomalous situation of declaring that rates must be higher on some lines than are necessary and requiring them to pay half of the excess earnings into the Treasury the excess, if any, could be equalized within systems or used to reduce rates if sufficient.

Referring to the insistence of the National Industrial Traffic League that the bill include a provision that existing carrier competition be substantially preserved, Mr. Thom said that with such a requirement "you might as well abandon the idea of consolidation, because any consolidation will necessarily require some abandonment of competition", and that the question should be whether the advantages of consolidation, such as the establishment of a new and stronger competition between large systems, will outweigh in the public interest the benefits of existing competition. The commission, he said, ought to be allowed to weigh the advantages and disadvantages against each other and decide which is more in the public interest.

Mr. Thom suggested a change in the language of the bill to indicate that in suggesting advantages to be sought in consolidation through the ultimate establishment of strong and well-balanced systems the purpose is to develop systems well-balanced both within themselves and with each other.

Elihu Root, Jr., representing minority stockholders of the Cleveland, Cincinnati, Chicago & St. Louis, that are contesting the terms of the plan by which the New York Central is seeking authority to lease the Michigan Central and the Big Four, testified before the committee on January 24 that the provisions of the bill are unfair to minority interests and are designed to facilitate sweeping away rights which they now possess. He said he was not proposing that minority interests be allowed to block a unification plan but that in cases where a road is already controlled by the company proposing to acquire further control the procedure should not be the same as if an uncontrolled majority had consented. For such cases he proposed that the minority be allowed, if they desired, to elect a committee of three to represent them as to the terms of the plan and at the expense of the company, because, he said, a minority is now at a great disadvantage in a contest in which its own board of directors is on the other side and the majority can carry on the fight at the expense of the company. He also proposed amendments to the bill making specific provision that the Interstate Commerce Commission shall consider the private interests as to the fairness of the terms of a unification plan, as well as the public interest in the plan as a whole, and that nothing in the bill shall be construed to impair the common law right of the stockholder to go to a court of equity on the ground that the terms are unfair. Under the bill, he said, the stock of a minority may be condemned and it can do nothing except to try to prove the value of its stock after it has lost control of the books of the company and of other resources.

Mr. Root said the general doctrine that the majority should rule does not apply when the majority interest is on both sides of the transaction because a board has a fiduciary relation to its stockholders, but that "most of the unification plans proposed recently have been drawn by people sitting on both sides, most of them have been unfair to the minority interests, and they have been almost uniformly condemned."

Resuming his testimony on January 25 Mr. Thom suggested the exclusion from the bill of a proposed provision which would require the Interstate Commerce Commission to pass upon the acquisition by one carrier of securities of another carrier and that the bill provide that the carriers may retain their present powers under state laws or charters to acquire such securities under conditions not prohibited by the anti-trust laws. He said that the filing of an application would constitute notice to the world that a company desired to buy certain stock and would result in such an advance in price as to make the plan impracticable. He said it was found that some roads valued highly the right they now possess to acquire stock in another company under state laws and that they had asked why that right should be taken from them.

Members of the committee asked, if this would not permit some acquisitions not in the public interest or which would amount almost to unification under state laws while another plan of regulating unification would be in effect under federal laws. Mr. Thom said that the effort was to remove a very practical difficulty and that it was for the committee to decide whether the advantages would outweigh the disadvantages. When one member asked if the roads could not be authorized to obtain options on stock before applying to the commission, Representative Merritt remarked that it would probably not be possible to get options for a period long enough to cover action by the Interstate Commerce Commission.

ALL CROSSINGS PROTECTED.—The New York & Long Branch, 48 miles long, plans, within the present year, to provide suitable signals at all the highway crossings on the line. At crossings which are attended, either with or without gates, annunciators are to be provided (except where already installed) and at other places automatic flashing light signals will be erected. There are 58 crossings in all, and of the new work, 25 per cent has already been completed.

The Danger in Declining Rates

Gen. Atterbury warns against downward readjustments—
Outlines advisory boards' achievements

THAT the downward adjustment of the freight rate structure cannot continue indefinitely without affecting railway revenues as a whole to such an extent as to constitute a serious danger, was emphasized by General W. W. Atterbury, president of the Pennsylvania Railroad, in an address before a meeting of the Mid-West Shippers' Advisory Board at Chicago on January 12, in which he outlined the outstanding contributions of the regional advisory boards toward better cooperation and understanding between the railways and shippers. He said in part:

"The record of the last few years shows that industry, agriculture and transportation—the three major factors in our economic life—are established today on a new and better relationship of understanding. The regional advisory boards have contributed substantially toward this development and are an essential element of its continuance in the future.

"It is gratifying to find here so many of the chief executive officers of the country's large manufacturing and mercantile industries. The activities of these boards have been extremely well conducted by those who have been charged with that responsibility. The work is in capable hands. At the same time let me say most earnestly that it is big enough and important enough to command the personal interest of the head of every industrial enterprise in the United States.

"The principle underlying the success of these boards is a cardinal tenet in any sound business philosophy. There is nothing new or startling about it. On the contrary, it is quite old-fashioned. Men want to be fair. Assuming good faith in each other, there should be no barrier to mutual understanding except lack of knowledge of the facts of a particular situation. But when you combine confidence with a willingness and desire to find out the facts and face them squarely around a conference table, you are pretty well along toward a satisfactory conclusion.

"I have seen this principle put into successful practice in the relations between the officers and employees of our own railroad. I believe, too, that on the same basis the problem of railroad consolidation eventually will be advanced toward a workable solution. Likewise it is not too much to expect that other vexatious problems which have arisen in the tranportation industry will be similarly resolved.

"One of the significant developments of our times is the growing desire on the part of business generally to make voluntary cooperation so effective as to eliminate the necessity for intervention by legislatures and regulating bodies. And there is an increasing tendency on the part of the government to adopt a constructive role in furthering this development.

Achievements of Regional Shippers' Boards

"When the regional advisory boards were conceived there was naturally a great deal of doubt and even suspicion about them. Railroad men and shippers alike shared in this skepticism, but their practical success is now an established fact. You have only to compare the situation annually confronting shippers as late as five years ago with what it is today to realize the tremendous changes which have taken place in this short period.

"Let me cite a few of the outstanding contributions of the regional boards. First, it is realized today more keenly and more widely than ever before that actual service transcends every other consideration in the public's attitude towards transportation. Cars and locomotives and their related facilities to do the work are the important things. This, of course, calls for vision and intelligent planning. These boards are primarily concerned with service. Their sole aim is to enable the most efficient use to be made of the transportation machine. Second, means have been provided whereby both shippers and railroads can and do cooperate, first, toward making known in advance the transportation requirements of the country, and, second, toward adjusting the supply of transportation to the demand for it. This involves a more intensive use of facilities on the part of both. Third, a spirit of cooperative understanding has been substituted for conflict and complaint arising out of the lack of knowledge of both the facts and the other fellow's point of view.

"Complaints of shippers are not considered by the committees of the boards or by the boards themselves until it has been shown that an effort has been made to handle and settle the difficulties directly with the railroads interested. In other words, you give the greatest encouragement to the men on the ground to come to an understanding and agreement. That is plain common sense.

"Constant Abrasion of Freight Rates"

"Now all this has had a very wholesome influence upon the relations between the railroads and the public, as well as upon the character of railroad service itself. My view, however, is that the real benefit of these boards to industry and to agriculture has only begun to be realized. I know, as I stated before, that the primary concern of these boards is with service. But you cannot stop there. In the final analysis service is merely the resultant of other factors which go far beyond the immediate needs of the moment.

"Therefore, I want to urge the chief executives of the nation's industries to become actively interested in the larger potentialities of these boards. You have already seen what can be done. Much more can be accomplished if the business leaders of the country are willing to study the situation as a whole, and to view the requirements of the moment in terms of the broad transportation needs of the future.

"The real test of any cooperative movement of this kind will come when vital situations are to be faced.

"Let me illustrate what I mean:

"For the last five or six years there has been a constant abrasion of railroad revenues. The process has been one of continual adjustment here and there in the rate structure. The whole trend of these adjustments has been downward. This is but natural. New industries are developed and rates must be adjusted. But that adjustment downward cannot continue indefinitely without affecting railroad revenues as a whole to such an extent as to constitute a serious danger. Adjustments are all right, but it must in reason be conceivable that they, too, should work both ways.

"An equilibrium must of necessity be maintained which will protect the rate structure as a whole. There

is always danger when special favors are extended to a particular industry, for industry as a whole may in the long run have to bear the burden.

"I cite this merely to indicate the sound constructive view of the transportation industry which I believe should be taken by business. We have to face the same sort of thing in our joint undertakings with employees. Cooperation is fine when it results in wage increases. It will meet its crucial test, however, if conditions should ever call for downward adjustments in wages.

"Therefore, my point is that both shippers and railroad men alike should take a broad and long-distance view of railroad problems, watch existing tendencies and not wait for any crisis to arise. This calls for business statesmanship. It is to express such statesmanship that these advisory boards were created.

"The time may come—I do not say it is here now, or even near here—when the abrasion of the rate structures, through individual reductions, may reach such a point that a horizontal revision of rates upward may be called for. If that time should come, it will be incumbent upon such bodies as yours to be so well advised in advance concerning all the factors that you will want to cooperate with us in dealing with the situation on broad, constructive lines.

"The same broad view needs to be applied to another question which is giving some branches of business serious concern. Industrial leaders are primarily concerned today about effecting improvements in distribution. It is no longer sufficient for successful operation merely to produce efficiently. It is necessary also to distribute efficiently. Furthermore, such changes have occurred in our economic scheme in recent years that it is essential to maintain a nice balance between production and consumption. As a recent writer on the subject expresses it: 'So long as consumption and production are kept in balance there is no limit to prosperity—to the satisfaction of human wants—this side of satiety."

Hand-to-Mouth Buying and the Railroads

"For several years business has been going through a process of adjusting itself to the requirements of this balance. Whether we like it or not, it has become a necessity in business to operate more intelligently with respect to demand for products. You may call it hand-to-mouth buying, production for consumption, current buying, or what not; the fact is that people seemingly buy only what they want and when they want it.

"The mainspring of this phenomenon is good railroad service. Without it the process could not go on. Without it the process could not have begun. I am firmly convinced, too, that without the more efficient and intelligent use of existing railroad facilities, made possible, in part at least, by the work of the regional advisory boards, this comparatively recent development in our industrial life would not have occurred.

"It would not be in order, however, to omit mention of other important factors which have made railroad service what it is today as against what it was even five or six years ago.

"More than five billion dollars has been invested in the railroad plant in the last half dozen years. The effect of this investment has been to rehabilitate the whole machine physically. The interest must be earned and paid on this large new investment of capital. Further, the railroad organization you see today is superior in morale and individual efficiency. There is more team-work than before. We are hauling heavier trains and getting them over the road faster. The limited freight train is now as dependable as its more elegant counterpart on the passenger schedule. The whole transportation organization has been imbued with a new spirit. It is alive to new and better ways of doing things and confident of its ability to do the job better than ever.

"There is no doubt that what is called hand-to-mouth buying has brought with it many advantages which heretofore have not been enjoyed. At the same time, it has produced problems for our railroads and our industries which demand serious attention. For instance, buyers have become so accustomed to prompt railroad delivery as to multiply small-lot orders, thereby affecting the cost of both their production and their distribution. It is conceivable too, that continued purchasing in small quantities might, under some conditions, create such an aggregate shortage of stocks as to cause the pendulum to swing the other way.

"The three important elements in the hand-to-mouth buying situation are these: First, there is a saving in capital investment and consequent interest, due to the fact that smaller inventories are carried. This is the chief advantage resulting from hand-to-mouth buying. Second, is the cost transportation, which is necessarily greater on account of the increase in less-than-carload business. Tranportation is more and more on a retail basis. Third, and also not so economical, is the cost to manufacture, which, in some instances, is increased because manufacturing upon a retail basis is not so economical as is mass production. It is the net result of these savings and increases in costs which is passed on to the consumer in the price he pays. The problem is to determine at what point the higher costs of transportation and production counteract the savings in interest or inventories, and to take the long distance view of the problem as a whole in determining policy.

Prosperity Cushioned Upon Efficient Transportation

"American prosperity is cushioned upon efficient railroad tranportation. Stability has become a watchword of our current prosperity. But you cannot have business stability unless your railroads are immediately and adequately responsive to business needs. It is the distributive process which more and more is the determining factor in the successful operation of production and manufacture.

'No business executive in this country can afford to be unaware of railroad service as an essential department of his own enterprise. And no business executive can likewise afford to be uninformed of the factors which underlie the maintenance, expansion and development of that department on a business basis. Industry itself needs the interest of business executives in these boards as much as it needs the practical results of their operation.

"Railroads today are operating on a more scientific basis than ever before. What has been accomplished, however, is but a step in the direction of the improvements that are possible in transportation and in its relation to American industry and agriculture. The transportation needs of the future can be measured only in terms of the possibilities of the growth of the country itself.

"Railroading is a changing thing. There is nothing fixed about it. Developments press themselves upon us with great rapidity. Electrification, improvements in motive power and terminals, the coordination of railroads with flying machines as well as with other means of transportation on land and sea, the future possibility of wireless transmission of communication, and even of power—all these have yet to unfold their real possi- things in the whole railroad field."

The Jadwin Flood Plan and the Railroads

Report of Army engineers submitted to Congress provides for three controlled spillways

NEARLY a dozen railroads operating within the alluvial valley of the Mississippi river are directly affected by the Jadwin army engineers' plan for flood control through the creation of floodways to relieve the main river channel of excess water during times of maximum flood—resulting in the flooding of the land and property within these floodways. If this plan is adopted the railroads affected may have to spend $65,000,000 to $75,000,000 to protect their property within these flooded areas, raising tracks, bridges and trestles, constructing new bridges and trestles, protecting embankments, etc. In addition, if the Jadwin plan is adopted, the railroads may be called upon to bear a share of the cost of right of way and damages for which the local levee districts will be assessed.

The Jadwin plan was prepared by Major General Edgar Jadwin, chief of engineers, and submitted to President Coolidge through the Secretary of War. The President in turn submitted the plan to Congress on December 8. The President concurred in general in the conclusions and recommendations set forth in the report and suggested that appropriate legislation be enacted putting them into effect. This plan, providing for the completion of construction within a period of 10 years, is estimated to require a total expenditure of $296,400,000, of which $185,400,000 is allotted for flood control works and $111,000,000 for channel stabilization and mapping.

Major General Jadwin states that the present levees, affording protection against the larger floods which may be said to come about once in five years, have nearly reached their practical limit as to height as shown by sand boils which develop behind the levees and by the settlement of levees on bad foundations. If it were attempted to hold the water within the present levee lines by raising them, it would be necessary to contend with river stages 6 ft. above the levee grade at Cairo, Ill., 14 ft. above the levee grade at Arkansas City, Ark., and 13 ft. above the levee grade below the Red river, he points out. To meet such a situation it is proposed to spill the water out of the main leveed channel at predetermined points when the stages reach the danger level, allowing it to flow to the Gulf of Mexico through natural drainage basins. The main river will discharge 1,500,000 sec. ft. from Cairo, Ill., to Bonnet Carre, La., and the floodways will carry any in excess of this amount. The overflow waters, in their course to the Gulf, are to be controlled by natural ridges and secondary levees.

Incident to the main proposal for the disposal of surplus water Major General Jadwin plans to set back local levees in the main river at "bottle necks" to increase the carrying capacity and reduce flood heights. Greater protection against crevasses is to be obtained by strengthening and moderately raising the main levees to meet predicted flood stages. Caving banks will be reveted to protect foundations for flood control and for navigation, providing, by dredging, a channel for river traffic between Cairo and New Orleans not less than 300 ft. wide and 9 ft. deep.

The chief of engineers discards suggested alternatives to the final plan either because of their visionary nature—such as the proposal to pump through pipe lines over 10,000,000 tons of water per hour from Cairo to the Gulf of Mexico, because of their cost in proportion to the benefits, because too much good land would be sacrificed or because of the time necessary for their accomplishment and the uncertainty as to the results. Included in the practical group of alternatives are dredging the bed of the Mississippi, dredging side channels, wholesale moving back of the levees, straightening the channel, clearing the floodways of vegetation and growth and reforestation. In this connection Major General Jadwin observes that in many cases reclamation of land behind levees has been pushed so far that insufficient room was left in the river during the flood of 1927 for the passage of the unprecedented volume of water. Man must not try to restrict the Mississippi river too much in extreme floods, he believes.

Between the head of the alluvial valley at Cape Girardeau, Mo., and Helena, Ark, it is planned to confine the water within the main channel of the Mississippi, allowing backwater in times of maximum flood to cover an area on the east bank extending from a point 35 miles north of Cairo on the Mississippi river and 30 miles above Cairo on the Ohio river to Memphis. Below Cairo the backwater limits extend from 2 to 25 miles back from the main channel of the river. Cairo itself is to be protected from backwater but the Cleveland, Cincinnati, Chicago & St. Louis, the Illinois Central, the Mobile & Ohio, the Missouri Pacific and the St. Louis Southwestern have lines located within the area subject to flood, particularly the Big Four whose line follows the Ohio valley for 20 miles northeast from Cairo. Below Cairo on the east bank 70 miles of an Illinois Central branch line betweeen Dyersburg, Tenn., and Hickman, Ky., and 10 miles of its main line south of Dyersburg are within the backwater limits.

On the west bank the Cairo-Malden line of the Cotton Belt crosses a proposed small backwater area six miles wide just north of New Madrid, Mo. South of New Madrid the plan provides for the complete protection of all land on the west bank as far as Memphis. Here the river is allowed to overflow its west bank as far south as Helena, creating a flood area within which are situated 40 miles of the Memphis-Little Rock line of the Rock Island, and a 50-mile section of the Missouri Pacific between Memphis and Marianna, Mo., on the Memphis-Helena line. South of Helena the Missouri Pacific line to McGehee, Ark., again enters a backwater area made up of overflow waters from the White and Arkansas rivers and as it skirts the west bank of the Mississippi to the Arkansas river levee 55 miles of line lie within the flood limits. This railroad also enters the backwater area between Helena and Clarendon, Ark.

At the mouth of the Arkansas river water from that tributary and from the White river is not to be allowed to enter the main channel of the Mississippi under the Jadwin plan—for that would raise the flood stage above the levee grade. Jadwin's plan disposes of this water

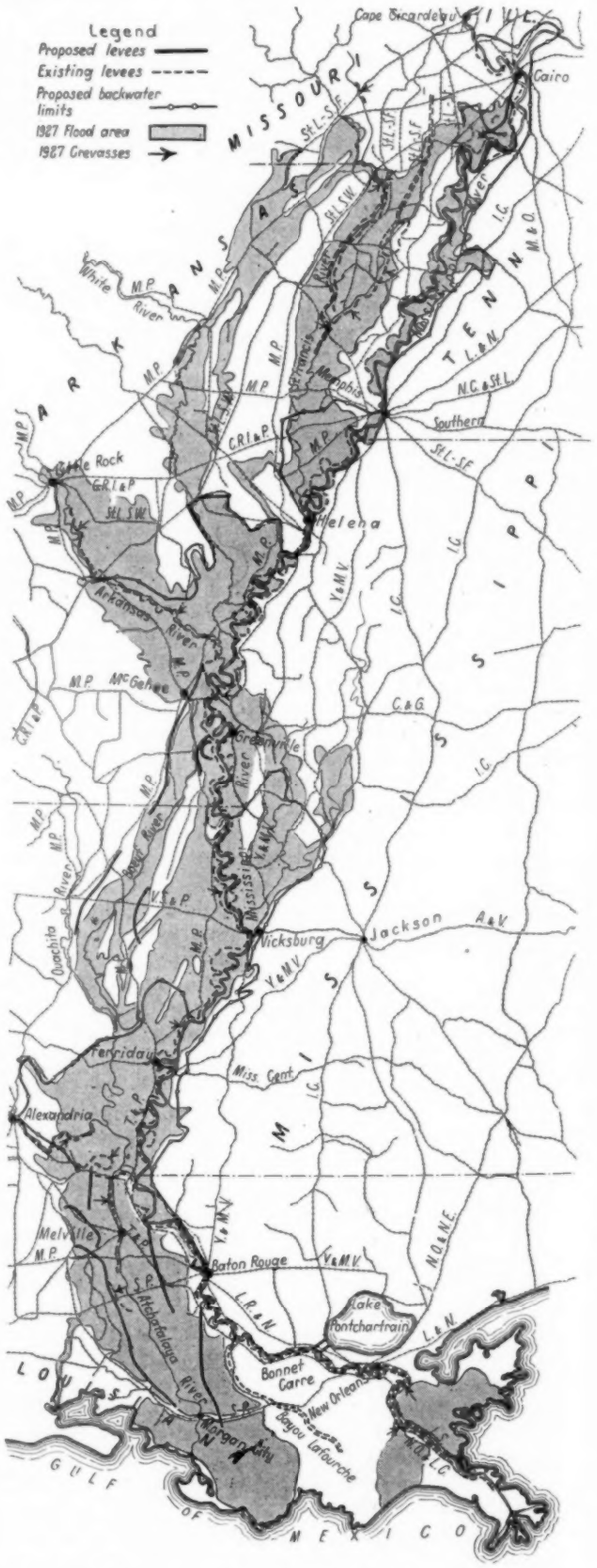
by spilling it out of the main river by means of a "fuse plug" section in the levee, into a floodway along the river, carrying it south until it meets the backwater from the Red and Ouachita rivers. Where the water cannot be confined by natural ridges along the Boeuf basin levees will be constructed. It is estimated that this basin will be flooded on an average of once every 12 years. The levee on the west side of the basin will be located about three miles east of McGehee, protecting that city where Missouri Pacific property was badly flooded in 1927. Arkansas City is to be enclosed with a levee.

Crossing the Boeuf basin floodway are several lines of the Missouri Pacific, totaling about 130 miles of railroad. These include portions of lines between McGehee, Ark., and Arkansas City, between McGehee and Lake Village, between Lake Village and Montrose, between Talulah, La., and Monroe and between Bastrop, La., and Winnsboro on the Bastrop and Winnsboro-Ferriday Line. The Vicksburg, Shreveport & Pacific (subsidiary of the Illinois Central) also crosses this floodway with 21 miles of line between the levees.

On the east bank of the Mississippi the plan calls for the establishment of a backwater area to care for the excess water from the Sunflower and Yazoo rivers which will extend from a point about 40 miles south of Greenville, Miss., along the east side of the river to Baton Rouge, La. This area will vary in width from 40 miles above Vicksburg, Miss., to less than 2 miles north of Baton Rouge. The Yazoo & Mississippi Valley is most seriously affected in this backwater area where about 75 miles of its lines, including portions of those between Silver City, Miss., Greenville and Port Gibson and Vicksburg, and a short section south of Yazoo City, may be subject to inundation.

In a proposed backwater area on the west bank, which has as its limits a point about 15 miles northeast of Ferriday, the east side of the city of Alexandria, La., and the mouth of the Ouachita river, are lines of the Missouri Pacific, the Texas & Pacific, the Louisiana & Arkansas, the Louisiana Railway & Navigation Company and the Mississippi Central. This area from Alexandria to the backwater limit on the east bank of the Mississippi forms a flood plain more than 65 miles wide. The Missouri Pacific is within backwater limits between Sicily Island, La., Ferriday and Vidalia on the Vidalia-Bastrop line, 35 miles, and between Clayton and St. Joseph on the Ferriday-Talulah line, 18 miles. The Louisiana & Arkansas crosses this basin from Rhinehart to Vidalia, 48 miles, where it connects with the Mississippi Central whose line is within the backwater area from Natchez, Miss., to a point five miles east. The Louisiana Railway & Navigation Company reaches the backwater at Mansura, La., on its Alexandria-Baton Rouge line and is more or less subject to flooding from that point to St. Francisville, La., on the east bank, 45 miles.

South of Ferriday more than 115 miles of Texas & Pacific lines will be subject to inundation, both in the backwater basin at the head of the Atchafalaya river and in the Atchafalaya overflow basin. To continue the diversion of the water that has followed the Boeuf river floodway and additional flood water from the Red river the plan provides that land on each side of the Atchafalaya river shall be converted into a floodway, carrying water past Morgan City directly to the Gulf of Mexico. During minimum flood the Atchafalaya river will be confined within its own levees and it is quite improbable that more than half of the floodway will be opened up for any but a very few floods. It is expected that overflows over the relief levees will not recur on an average of more than once in 15 years. About 35 miles of the Texas & Pacific main line between Ft. Worth, Tex., and New Orleans crosses the Atchafalaya floodway, passing through Melville which is to be enclosed within a levee.



The Alluvial Valley of the Mississippi River, Showing Area Flooded in 1927 and Relief Measures Proposed in the Jadwin Report

Branch lines between Ferriday and a point 69 miles south, between Melville and Port Barre, 15 miles southeast, and between Ferriday, Marksville and Bunkie, 47 miles are also subject to inundation in both the floodway and the backwater basin. Three other lines cross the Atchafalaya, the Houston-New Orleans main line of the Gulf Coast Lines has 22 miles within the floodway limits between Baton Rouge and Opelousas while the Southern Pacific has 20 miles inside the new levees, between Baton Rouge and Lafayette, and its New Orleans-Houston line passes through Morgan City, with 18 miles subject to flood.

The Jadwin plan makes specific reference to the Southern Pacific crossing of the Atchafalaya floodway as follows:

"The territory on each side of Morgan City should not be closed with artificial obstructions. The territory to the east is now a series of swamps and bayous through which water can escape. The Southern Pacific running through Morgan City should gradually increase the openings in its embankments and also raise its tracks. As a policy for the future, this railroad should not obstruct the flow of flood water, which may not only cause damage to the people behind the embankment, but also damage to the railroad itself. There should be an abundance of wide openings over a distance of from 10 to 20 miles. The same precaution should also be taken by other railroads crossing the floodway farther north."

Perhaps the largest single expenditure on the part of the railroads for flood protection works at any one point will be necessary at Bonnet Carre, La., where the Jadwin plan contemplates the construction of a controlled spillway emptying into a leveed floodway to Lake Pontchartrain. Here with a floodway about three miles wide and five miles long, capable of discharging 250,000 sec.-ft., bridges must be provided for the tracks of three railroads. The Illinois Central is located at the east end of this spillway area, the Yazoo & Mississippi Valley at the west end and the Louisiana Railway & Navigation Company between the other two railroads.

It is probable that from $9,000,000 to $10,000,000 will be required to bridge this one floodway for the three railroads. The Bonnet Carre spillway and floodway are designed to afford complete control of the discharge, and complete protection for New Orleans, being opened when the flood stage at New Orleans has reached 20 on the Carrollton gage and cut off as soon as the stage has fallen below that figure. Past records, according to the report, indicate that its operation will be required about once in five years for a period of from one to three months.

I. C. C. Hears Argument on Tips to Porters

WASHINGTON, D. C.

SEVEN members of the Interstate Commerce Commission heard oral argument on January 21 on a motion of the Pullman Company that it dismiss, for want of jurisdiction, a complaint filed by the Brotherhood of Sleeping Car Porters asking the commission to make an investigation of the tipping system and to order the company to cease from informing porters that they may expect an addition to their wages in the form of tips and also from permitting them to receive tips.

The company was represented by George A. Kelly, general solicitor, and Luther M. Walter, who told the commission that the complaint is but a subterfuge intended to help the porters to obtain an increase in wages, that such an order would not abolish tips, and that the commission was not directed by law to effect social reforms. They said that the tip is a matter between the passenger and the porter and in no way related to the company's published rates, and that it is taken into consideration in connection with wage negotiations in the same way that any fact relating to the living expenses of employees is considered. If the commission is to decide whether the wage scale is so low that the employees cannot remain in the service without tips, Mr. Kelly said, it would have to make a complete investigation of the wage scales. He said the last wage contract, involving an increase of a million dollars a year, was negotiated with representatives of the porters elected by secret ballot and that the company does not recognize the brotherhood.

Henry T. Hunt, a former member of the United States Railroad Labor Board, represented the brotherhood, contending that the tipping practice is unlawful, injurious to the service and against public policy and tends to destroy the equality in rates and service required by the interstate commerce act. He said that although the company in its rule book prohibits the solicitation of tips, it encourages "silent importunity" and he contended that the kind of services for which porters are usually tipped are included in their contract of employment because the instructions say that the most important part of the porter's duties is to "please the public". He said the company pays the porters mileage rates as part of their compensation and "then farms out the public to pay further compensation." He also contended that the porter is in the nature of a police officer, supposed to enforce laws against gambling and the federal prohibition act to some extent, and that the effect of the tip is to deflect him to some extent from the performance of his duty, and he argued that the tipping practice makes for unduly long runs for the porter so that he may collect his tips at the end of the run.

Chairman Campbell expressed some interest in the allegation that the company is in effect collecting about $7,000,000 a year from the passengers through the porters and Commissioner Eastman said he was interested in the effect on working conditions and the possible discrimination between passengers. Commissioner Aitchison indicated that he thought many of the arguments advanced had little to do with the question of jurisdiction, and in reference to a point as to the sufficiency of the complaint he remarked that the commission "is an administrative body and is not here merely to call balls and strikes."

I. C. C. Not Social Reformers

Mr. Walter said it is fundamental that the commission does not regard itself as having been created to bring about social reforms or to establish public policy, but that its duties are prescribed by law. "If you want to make an investigation," he said, "all right, but don't be misled into making yourselves a railway labor board and don't allow yourselves to be made the catspaw of shrewd labor organizers and lawyers."

RICHARD OVERBY, a 13-year old negro boy of Swedesboro, N. J., who recently protected a train of the Pennsylvania from a broken rail by signaling to the engineman with a red tablecloth, was the guest of honor at a large meeting in Swedesboro on January 23, when L. K. Marr, superintendent of the road, presented him with two purses of gold, one contributed by the passengers on the train that was saved and one from the railroad company. The mayor of Swedesboro was also a speaker at the meeting, at which there was an attendance of 350 citizens and school children.

Union Pacific Earnings Improve

In contrast with results of Class I railroads as a whole—Strong financial position and excellent operating showing

THE Union Pacific's recently issued earnings statement for November reflects a trend opposite to that of the railroads of the country as a whole. In comparison with the results for November, 1926, the Union Pacific showed an increase of 5.2 per cent in its total operating revenues and an increase of 12.2 per cent in its net railway operating income. The Class I railroads as a whole showed for November, 1927, as compared with the same month of 1926, a decrease of 10.4 per cent in total operating revenues and a drop of no less than 24.7 per cent in their net railway operating income. There was a similar contrast between the earnings of the Union Pacific and all Class I railroads in October. For the 11 months' period, the Union Pacific did not show up as well as in the first 11 months of 1926, but its decrease in gross was considerably less than that of all the railroads. The Union Pacific's decrease of 1.0 per cent in its total operating revenues for the 11 months' period compared with a decrease of 3.3 per cent for all Class I carriers, while its decrease of 6.3 per cent in net railway operating income compared with an all-road decrease of 10.8 per cent. One important reason for the Union Pacific's better fortune is in the improvement in agricultural conditions in its territory. Much has been said during the past few months regarding the improving prosperity of the western and northwestern farmer. Conditions in Nebraska especially improved in substantial degree, and the Union Pacific has apparently benefited accordingly.

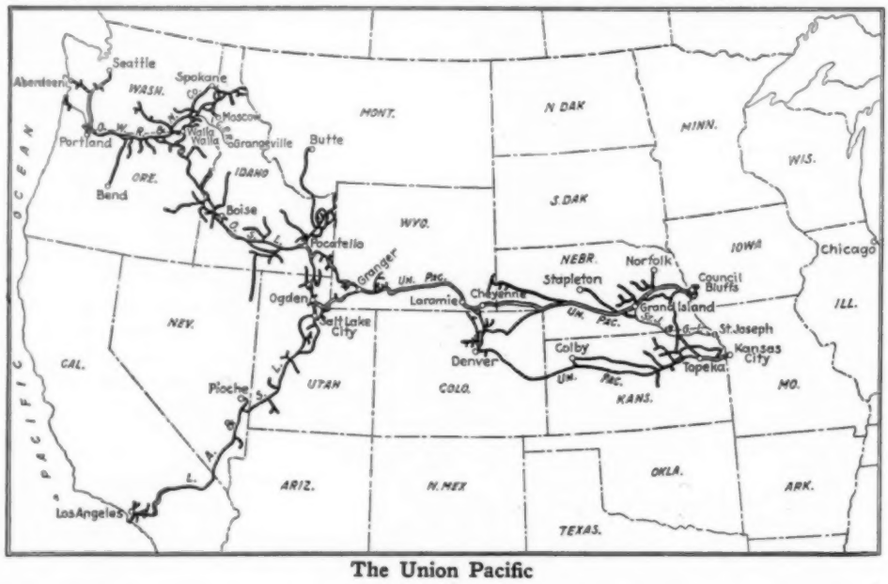
$16 a Share Expected for 1927

The expectation is that the Union Pacific will show for the full year of 1927 earnings on its common stock of approximately $16 per share. Its 1926 net after interest and other fixed charges and after payment of the 4 per cent dividends on the preferred stock was equivalent to $16.64 per share on the common stock. Earnings per share in 1925 were $15.40. The Union Pacific has been paying 10 per cent dividends on its common stock since 1906, except in 1914 and 1915 when the rate was reduced to 8 per cent, following a distribution of shares of the Baltimore & Ohio, held in the Union Pacific treasury, the return on which was estimated to amount to about $2 per year.

There are now several high-grade railroad stocks which pay 10 per cent dividends, including Atlantic Coast Line; Atchison, Topeka & Santa Fe; Canadian Pacific; Chesapeake & Ohio; and Norfolk & Western. None, however, has been paying dividends at this rate as long as the Union Pacific, and in the case of the first two, part of the 10 per cent is in the form of extras. It is noteworthy that Union Pacific was the only issue of the group that some time in 1927 did not reach a price of 200. Union Pacific common had a price range during the year between a low of 159½ on January 27 and a high of 197¾ on December 3. Its closing price for the year was 191¾ which, by the way, was 29½ points above its opening price for 1927. The statement was made in the leading editorial in the *Railway Age's* Annual Statistical Number that an especially important factor tending to increase the prices of railroad stocks during 1927 was low interest rates. This viewpoint is particularly apropos with respect to the Union Pacific, because at no time during the year was any noticeable speculative interest manifested in the stock, nor was there any indication that the company might have any plans for increasing its dividend disbursements, or was considering the distribution of any part of its enormous volume of treasury assets.

An Investment Trust

The Union Pacific may, in general, be characterized as a very prosperous and ably managed property, having a very conservative policy with reference to its finances. The company, first of all, is almost as much an investment trust as it is a railroad, because it secures nearly sufficient revenue in the form of interest on bonds and dividends on stock which it owns to pay its interest and other fixed charges. The balance sheet as of December 31, 1926, which may properly be referred to at this time in view of the fact that the December 31, 1927, balance sheet will not be made public until the 1927 annual report is issued in April, showed the ownership of $44,000,000 in stocks, bonds, notes and equipment trust certificates of affiliated companies, these companies including not the constituent companies of the system (Oregon Short Line, Oregon-Washington Railroad & Navigation Company and Los Angeles & Salt Lake) but such companies as the St. Joseph &



The Union Pacific

Grand Island, the Union Pacific Coal Company, the Pacific Fruit Express (in which the Union Pacific has a one-half interest) and various land, terminal and water companies.

Of greater interest is the ownership of securities of non-affiliated companies, carried on the December 31, 1926, balance sheet at a value of $160,000,000. Stocks of such companies having a par value of $71,500,000 and carried at a value of 90 million dollars included those of the Baltimore & Ohio, the Chicago & North Western, the Chicago, Milwaukee & St. Paul, the Illinois Central, the New York Central and the Railroad Securities Company (which holds an additional block of Illinois Central). The list of bonds, notes and equipment trust certificates of non-affiliated companies had a par value of $79,000,000, carried at $70,000,000, in addition to which there was reported ownership of Liberty Bonds and United States Treasury notes aggregating $32,000,000.

The dividends received from stocks owned totaled in 1926, $9,000,000 in round figures; from bonds and notes, about $6,000,000, in addition to which there was interest of about 1¼ million on loans and open accounts, making a total income from these sources of about $16,100,000. The Union Pacific paid out in 1926 not quite $18,000,000 in interest charges on its own funded debt, which amount, therefore, was not far greater than the company's receipts of dividends and interest on securities in its treasury.

Union Pacific, Operating Results, Selected Items

Year ended June 30, 1916, and calendar years 1920 to 1926.

	1916	1920	1921	1922	1923	1924	1925	1926
Average mileage operated	7,918	8,192	8,205	9,406	9,483	9,510	9,548	9,647
Total operating revenues	$104,717,005	$209,049,510	$181,445,913	$192,877,122	$211,318,465	$199,035,118	$198,039,901	$205,416,264
Total operating expenses	58,582,770	156,939,935	131,601,749	143,846,229	152,249,080	141,611,098	138,842,480	140,769,540
Net operating revenues	46,134,234	52,109,576	49,844,164	49,030,892	59,069,385	57,424,020	59,197,421	64,646,723
Railway tax accruals	5,310,698	12,086,046	11,720,856	13,251,551	13,573,067	14,457,715	13,462,886	15,725,933
Railway operating income	40,823,536	40,014,200	38,084,985	35,766,067	45,474,535	42,936,623	45,719,298	48,906,839
Hire of equipment	Cr. 220,155	Dr. 375,107	Dr.3,839,656	Dr.1,560,815	Dr.4,938,152	Dr.4,274,781	Dr.4,809,334	Dr.6,028,220
Net railway operating income	40,918,906	39,261,267	33,856,449	33,496,318	39,660,246	37,913,161	40,038,645	42,100,143
Dividends on stock owned	4,331,904	4,172,396	4,725,372	7,888,049	9,473,676	8,122,395	8,725,895	8,893,880
Interest on bonds owned	6,528,971	7,331,211	7,564,737	6,156,427	6,008,541	6,433,990	6,103,127	5,909,971
Total other income	11,751,744	12,298,957	13,138,088	15,749,563	17,513,567	16,226,202	16,539,698	17,129,664
Gross income	52,670,649	48,261,218	47,364,255	49,245,880	57,173,812	54,139,363	56,578,343	59,229,807
Interest on funded debt	13,810,313	15,419,279	15,914,445	16,430,877	16,879,477	17,855,927	17,884,893	17,794,134
Total deductions	13,881,505	15,586,987	16,063,180	16,906,157	17,251,606	18,386,159	18,347,283	18,245,057
Net income	38,789,134	32,674,231	31,301,075	32,339,723	39,922,206	35,753,205	38,231,060	40,984,749
Preferred dividends (4%)	3,981,740	3,981,740	3,981,740	3,981,740	3,981,740	3,981,740	3,981,740	3,981,740
Common dividends—rate	8	10	10	10	10	10	10	10
Common dividends—amount	$17,783,328	$22,229,160	22,229,160	22,229,160	22,229,160	22,229,160	22,229,160	22,229,160
Earnings per share on common	$15.65	$12.90	$12.29	$12.75	$16.16	$14.29	$15.40	$16.64
Total revenue tons	19,867,068	28,320,410	23,255,922	27,171,043	30,820,137	31,503,788	32,770,901	34,534,148
Revenue ton-miles (thousands)	8,244,312	12,882,042	8,904,692	10,533,713	11,916,698	11,786,736	12,444,146	13,211,550
Revenue passenger-miles (thousands)	917,993	1,308,588	956,698	1,056,202	1,142,849	1,057,149	1,050,052	983,164
Revenue per ton per mile (cents)	0.885	1.141	1.451	1.315	1.285	1.233	1.188	1.178
Average haul	414.97	454.87	382.90	387.68	386.65	374.14	379.73	382.56
Transportation ratio	24.6	33.1	32.30	32.94	30.96	30.21	29.84	28.55
Operating ratio	55.94	75.07	72.53	74.58	72.05	71.15	70.11	68.53
Per cent net railway operating income to total operating revenues	39.1	18.8	18.7	17.4	18.8	19.0	20.2	20.5

NOTE:—Los Angeles & Salt Lake included beginning in 1922.

Capitalization and Assets

The Union Pacific is one of the country's billion dollar corporations. Its total investments, exclusive of cash and other current items, at the end of 1926 totaled $1,084,000,000. Of this $836,500,000 represented the investment in road and equipment, and the better part of the remainder represented the company's holdings of securities. The capitalization, however, totaled $734,607,525, or less than the investment in road and equipment alone. Further evidence of the Union Pacific's extremely strong financial position is given by its profit and loss credit balance, standing at the end of 1926 at $203,740,000 in round figures, or by its total surplus account of $269,600,000—equivalent to over $120 per share of outstanding common stock.

A certain apology may be in order for using for this article figures from the Union Pacific balance sheet as of December 31, 1926. It may be presumed, however, that when the annual report of the company is made available late in April, while the figures may be different, the general relationship probably will not have greatly changed.

Certain Operating Characteristics

The Union Pacific system includes four constituent companies, operating a total of 9,678 miles of railroad. The Union Pacific Railroad operates the main stem of the system between Omaha and Ogden and the Kansas division from Kansas City to Denver. This portion of the system is the busiest and most prosperous part of it. Although including less than 40 per cent of the total mileage, it carried in the first 10 months of 1927, 61½ per cent of the system's net ton-mile, collected 56 per cent of its total operating revenues and earned 71 per cent of its net railway operating income. The Oregon-Washington gives the system its entrance into the Pacific Northwest and is joined with the parent stem by the Oregon Short Line. The Los Angeles & Salt Lake similarly carries the system to Los Angeles and southern California.

Inasmuch as portions of the system extend into the Northwest, it is interesting to determine whether even the recognized operating efficiency of the Union Pacific has been able to overcome the disadvantages met by the other railroads operating in that territory. The answer is that the Union Pacific lines reaching into the Northwest show the same decline in earnings that the other roads do. The following comparison of the 1926 net railway operating income with the standard return for operations during federal control for the four constituent companies of the Union Pacific system throws considerable light on this point:

	1926 Net railway operating income	Standard return	Per cent of increase
Union Pacific	$27,852,065	$23,670,741	18
Oregon Short Line	7,024,611	10,204,619	—31
Oregon-Washington	4,662,729	4,491,883	4
Los Angeles & Salt Lake	2,560,739	3,414,751	—25
Total, Union Pacific System	$42,100,144	$41,781,994	1

It will be observed that the Union Pacific Railroad is the only part of the system that has effected any great amount of improvement over its pre-war earnings re-

sults and that most of the gain that it made was counteracted by losses reflected in earning power shown by the northwestern and southwestern portions of the system.

Service

A book might almost be written regarding the excellent operation of the Union Pacific System. One really has to see the property to appreciate the high standard in which it is maintained. Outstanding characteristics include, of course, the famous Sherman gravel-ballasted track, the modern motive power and the excellent condition in which it is kept.

Operating Efficiency

A ready means of indicating Union Pacific operating efficiency is by use of its operating statistics. These are reported separately for the four companies and the latest figures available are those for the first 10 months of 1927. Considerable space would be required to show the figures for the four companies in any great detail, but it may serve to show the improving results by comparison with the figures for the first 10 months of 1920.

The figures which follow show results for the first 10 months of 1927, expressed in percentage of increase or decrease from the results of the first 10 months of 1920:

	Union Pacific	Oregon Short Line	Oregon-Washington	Los Angeles & Salt Lake
Gross ton-miles	16	—14	— 2½	56
Net ton-miles	— 6	—26	—13	47
Freight train-miles	—20	—31	—21	3
Freight train-hours	—29	—34	—30	7
Freight car miles	19	—13	....	56
Tons of coal consumed	—26	—28	—25	47
Gross tons per train	46	24	23	51
Net tons per train	18	7½	10	43
Train speed, miles per train-hour	13	5	13	— 3
Gross ton-miles per train-hour	64	30½	38	46
Net ton-miles per train-hour	33½	13	23½	38

The fact that the increased train-load in each instance has permitted a substantial decrease in the train-miles that otherwise would have been required, is particularly noticeable. The increase in train-speed with increased train-load seems to be in keeping with ideals of present-day railroad operation, and proves to have been particularly beneficial in the form of the substantial decrease in the freight train-hours. The large increase in the gross ton-miles per freight train-hour—in the case of the parent stem amounting to 64 per cent—stands out and emphasizes the combined improvement in train-load and in the reduction of train-hours attendant upon the ability to move the business in fewer trains and to move the latter at a higher rate of speed. One drawback in the figures is the failure of traffic to show a more substantial increase. In comparing 1927 and 1920, the northwestern portions of the system seem to have suffered severely from loss of tonnage, which again evidences that the Union Pacific System is no exception to the general conditions ruling on the railroads serving that territory. The Los Angeles & Salt Lake makes a quite satisfactory showing in its traffic growth, as in most other respects.

The Union Pacific appears to be in a remarkable position among the American railroads, so remarkable, indeed, that investors more or less take its strong position for granted and do not appear to become very much excited about it. This follows probably because the property has pursued an even course from the standpoint of its dividend payments, earning power and operating efficiency over a long period of years and apparently may be expected to continue to do so for a similarly long period in the future.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading during the week ended January 14 amounted to 906,734 cars, an increase of 152,672 cars over the preceding week, in which the New Year's Day holiday occurred, and a decrease from the corresponding weeks of 1927 and 1926 of 35,997 and 25,001 cars respectively. Loadings of grain, ore, less-than-carload merchandise and miscellaneous freight were greater than in the corresponding week of last year. Coal loadings amounted to 191,224, a decrease of 37,216 cars from the total a year ago. Loadings in the northwestern district only were larger than in the corresponding week of last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

DISTRICTS	1928	1927	1926
Eastern	201,081	214,884	211,255
Allegheny	180,581	189,972	186,347
Pocahontas	53,940	58,411	56,740
Southern	145,061	148,861	143,269
Northwestern	113,972	109,098	114,006
Central Western	137,177	142,916	141,166
Southwestern	74,922	78,589	78,952
Total Western Districts	326,071	330,603	334,124
Total All Roads	906,734	942,731	931,735
COMMODITIES			
Grain and Grain Products	48,633	43,983	49,244
Live Stock	32,386	33,008	34,569
Coal	191,224	228,440	192,525
Coke	11,069	11,932	17,735
Forest Products	59,839	65,020	65,901
Ore	9,008	8,554	9,759
Merchandise, L.C.L.	239,940	237,818	241,923
Miscellaneous	314,635	313,976	320,079
January 14, 1928	906,734	942,731	931,735
January 7,	754,062	933,890	907,622
December 31, 1927		679,600	734,281
December 24,		829,006	768,040
December 17,		868,162	944,396
Cumulative total, 2 weeks	1,660,796	1,876,621	1,839,357

The freight car surplus averaged 461,669 cars during the period ended January 7, as compared with 464,005 cars on December 31. The total included 229,362 box cars, 177,166 coal cars, 24,534 stock cars and 14,261 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended January 14 totalled 66,570 cars, an increase over the previous week of 14,597 cars and an increase over the same week last year of 7,432 cars.

Totals for Canada:—

Week ended	Total cars loaded	Total cars received from connections
Jan. 14, 1928	118,543	65,586
Jan. 15, 1927	116,528	63,775
Jan. 16, 1926	111,236	63,084

WORK DONE ON STREETS, roads, etc., in the elimination of railroad grade crossings is, hereafter, in the state of New York, to be deemed "public work," provided the legislature passes two bills introduce in the assembly on January 11, by Phelps Phelps of New York City. The adoption of this definition would put the work under the law requiring advertising for bids, and imposing the eight hour law and the prevailing rate of wages law, on the railroad company doing the work. A bill introduced in the New York Legislature on January 17, by representative L. W. Hall, would make it a misdemeanor to drive a vehicle across a railroad against a stop signal of any kind.

Air Brake Developments Outlined

Western Railway Club discusses improved brakes and their maintenance at January meeting

FOLLOWING a Dutch treat dinner and entertainment of unusual merit, the members of the Western Railway Club devoted their regular monthly meeting, held Monday evening, January 16, at the Hotel Sherman, Chicago, to a consideration of railway air brake equipment. Two principal addresses were made, one entitled "Improvements in Air Brakes" by C. C. Farmer, director of engineering of the Westinghouse Air Brake Company, and the other "Progressive Modernization of Air Brake Maintenance Practice" by E. F. Wentworth, representing the New York Air Brake Company. It is safe to say that not in many months has so comprehensive a treatment of air brake problems and achievements in design and maintenance been presented before any body of railroad men.

The meeting was called to order by President W. G. Black, mechanical assistant to the president of the Erie Railroad, who introduced the speakers. S. G. Down, vice-president of the Westinghouse Air Brake Company, by way of introduction, traced briefly the 10 major developments in air brakes since their first practical application 60 years ago. L. K. Sillcox, assistant to the president of the New York Air Brake Company, referred to the improvements in design, and emphasized particularly the greater care necessary in handling and applying air brake valves and in maintaining foundation brake rigging. Other speakers included H. A. Johnson, director of research of the American Railway Association, and W. P. Borland, director of the Bureau of Safety, Interstate Commerce Commission. The following are summaries of Mr. Farmer's and Mr. Wentworth's remarks.

Improvements in Air Brakes

By C. C. Farmer

Director of Engineering, Westinghouse Air Brake Company, Wilmerding, Pa.

In introducing his subject, Mr. Farmer quoted the following from the 1926, annual report of Herbert Hoover, secretary of commerce: "Probably the most outstanding single industrial accomplishment since the war, has been the reorganization of our American railways." Mr. Farmer then reviewed some statistical facts which showed that the railroads were utilizing their existing equipment facilities more intensively. Briefly, these figures demonstrated that the railroads had procured in freight service an increase in car weight, both empty and loaded, an increase in the average car load, an increase in the number of cars per train, an increase in the average speed of the train and an increase in the daily mileage per car. Obviously, the performance of the air brake had to be improved in order that it might contribute its proper share to the general improvement obtained in railroad operation. This development work, he said, has been carried on by special engineering organizations numbering about 275 persons and at a cost in the development of new and improved parts, well on to $1,000,000 each year. Not only have new complete equipments been produced, but also much work has been done in the improvement of existing devices. Although a change in an existing device entails the production of an entirely new device, yet while difficult to evaluate in dollars and cents, the saving accruing to the railroads in the way of reduced maintenance expenses and improved functioning is great.

Incidentally, Mr. Farmer pointed out that it is a task of maximum difficulty to improve an existing device without interference with the interchangeability of parts; without involving new and special manipulation which would require extensive educational work on the part of the railroads; without demanding some radical change in accepted operating or maintenance practices and under these limitations, to accomplish an improvement which carries with it the maximum of gain and the minimum of loss.

Mr. Farmer first discussed the improvements that have been made to air brakes on the steam locomotive. Although the cross-compound type of air compressor had proven its adaptability to general service requirements and the infrequency of failures in actual service, suggested that there was no great possibility for improvement, he said that additional improvements in detail parts have been effected which increase the service life and reduce maintenance cost. The original cross-compound compressor was intended for a steam pressure of from 200 to 225 lb. Recent developments toward the use of higher steam pressures in steam locomotive boilers, has led to the development of a compressor which would operate at pressures much higher than 225 lb. At the present time, a compressor of the cross-compound type, suitable for steam pressures up to 450 lb., is under development. He also discussed at considerable length the effort being made to prevent grit and dust entering the compressor air cylinder and to improve the method of lubrication as well as the character and suitability of the materials used in making periodical repairs. Improvements have also been made in the design of the air compressor for satisfactory operation with superheated steam.

He also discussed a number of improvements that have been made to air valves and cages with the object of obtaining more rugged designs and reduced leakage. The possibilities of the use of non-corrosive steels for main reservoirs have not been overlooked and considerable research has been done in this direction. He also outlined the improvements made to the feed valve. The present design of the M-type feed valve will maintain 70 lb. pressure at the head end of a 100-car train throughout the recharging period, something which cannot be obtained by the older types of feed valves. The brake valve used in locomotive equipment has for many years retained its present structure and its performance has been very satisfactory. Within recent years, however, improvements have been made to this valve which provide for more prompt reapplication of the brakes subsequent to a release manipulation which has resulted in an overcharged equalizing reservoir.

After considerable experimentation, means were determined by which the service port in the No. 6 distributing valve could safely be reduced in area so that the rate of cylinder pressure development on the en-

gine was held down to a value in substantial agreement to that obtained on the cars in the train. The location of this valve, he said, closely adjacent to the brake valve where service brake pipe reductions are made, caused its rate of reduction of cylinder pressure to be somewhat faster than that secured on the cars because the brake pipe pressure at the distributing valve drops more rapidly than further back in the train. This development of effective brake cylinder pressure on the engine and tender in advance of the cars, caused the slack to close in with a shock which varied with the degree of brake pipe reduction, train length, etc. This was followed by a jerk when the brakes were applied on the rear portion of the train. The improvement made to the No. 6 distributing valve will eliminate this slack action and do much toward reducing rough handling in passenger service.

Passenger Car Brakes

In reviewing the developments made to brake equipment for passenger cars, Mr. Farmer stated that prior to the World War, it was concluded that the only way to secure uniformly acceptable passenger train stops would be by means of electrically controlled pneumatic brake equipment to produce simultaneous action of all brakes in a train. Development work on this type of equipment was interrupted by the war, but was resumed in the post-war period. This work was recently brought to completion after a way had been found by which the desired results could be obtained by purely pneumatic means. The solution of the problem of incorporating quick service in a universal valve, one of the greatest in importance of recent date, permits the securing of satisfactory train slack action during service brake operation by the engineman without the exercise of that care and degree of skill formerly necessary but often not exercised on account of local conditions, train schedule requirements, etc. The overall result of this development is smoother train handling and a financial saving to the railroad.

In discussing the interchangeability of parts, Mr. Farmer pointed out that the American railroads are so accustomed to complete interchangeability of brake equipment that few realize what a difficult situation would be presented if brake equipment were not completely interchangeable insofar as its functioning was concerned. In Europe a variety of train brake systems have been used by the railroads in the different countries with the result that very frequently cars can not be interchanged because the brake equipments would not function properly when associated in the same train. This difficulty so interfered with international traffic and the steps to overcome it were so difficult of inauguration, that the Treaty of Versailles contained a stipulation whereby the various powers agreed to adopt a train braking system by which functional interchangeability could be obtained with their respective car equipment. The fact that it was felt necessary to employ governmental action to bring about interchangeability in Europe indicates how fortunate American railroads are that interchangeability of all brake equipment has been maintained.

Mr. Farmer discussed at considerable length the operation and advantages of the quick service function incorporated in passenger car brakes. The decreasing of the time interval between the service application of a brake on the first and last car in a train, decreases the difference in the degree of brake efforts occurring in the front and rear ends of a train at any time during the application. This combined with the correct timing of the tender and engine brake applications results in a more gradual train slack movement and, therefore, smoother train handling. He referred to the results observed from the test run of a 19-car train equipped with improved car brake devices and roller journal bearings which was run between Washington and New York by the Pennsylvania. In discussing this test, he pointed out that perfectly operating brake equipment devices cannot completely compensate for defects in foundation brake rigging which cause non-uniform retarding forces to be developed on different cars in the same train.

Freight Car Brakes

Mr. Farmer reviewed at considerable length the development of air brakes for freight cars and also the investigation work that is now being conducted by the Mechanical Division, American Railway Association. He referred to the annoyance and delays experienced in recent years by roads having grades requiring the use of retaining valves on their equipment. Considerable of this trouble was due to the retaining valve springs being stretched by brake cleaners and also on account of improper repairs to the closing valves and seats. This occasioned a request on the part of the railroads for the development of a structure in which the possibility of damage by workmen would be eliminated as much as possible. A study of the problem resulted in the development of a combined cap, valve and spring structure in which the compression or tension value of the spring could not be changed by unauthorized persons or the valve seat destroyed by grinding after the original assembling.

Another development in freight car brakes is an improved type of angle cock having an extension at the pipe end so arranged that the angle cock is rigidly attached to a supporting bracket and the brake pipe is relieved of the strains incident to the cock being carried by the pipe. A new type of packing for brake cylinders has been developed which does not involve the use of leather. This development has been followed by replacing leather throughout all air brake devices by a composition substitute. This has been of marked advantage because filler from the leather is no longer present to interfere with the proper functioning of the various valves.

Special empty and load equipment has been developed for heavy freight cars such as the 120-ton cars on the Virginian or the 100-ton cars in service on the Chesapeake & Ohio. Cars of this class are, of course, not encountered in regular interchange service. Empty and load brake equipment was, however, applied to 2,000 70-ton cars for the Reading which are used in coal service on some extremely severe grades. These cars are sometimes offered for general interchange and may be found, more or less, throughout the country.

In concluding his remarks on freight car brake equipment, Mr. Farmer referred to the single car testing device which was recently adopted as a standard by the American Railway Association. This device provides a convenient means for roughly checking the condition of the brake equipment on a single car without necessitating the removal of any of the equipment from the car.

Air Brakes for Electric Locomotives

Although the equipment for the electric locomotive is generally similar to that used on steam locomotives, Mr. Farmer stated that the major operating devices are all somewhat different in detail due to requirements brought about by two and sometimes four cabs to a locomotive and an equal number of sets of cab brake equipment. A

special mounting has been developed through which the piping involved in safely interlocking the several cab equipments and accomplishing, from the leading cab, full control of the brakes on more than one locomotive, has reduced and simplified the equipment.

Another recent development in electric locomotive equipment is a 150-cu. ft. displacement motor-driven compressor which has just passed the laboratory tests and is now ready for service tests on the road. This compressor is driven directly by the motor at 1,500 r.p.m. This high speed represents the most modern practice in compressor construction and many of its features parallel developments in automobile gas engine construction.

Modernization of Air Brake Maintenance

By E. F. Wentworth
New York Air Brake Company, New York

Mr. Wentworth said that without exact, adequate and continuous maintenance as well as thorough periodical testing, air brakes cannot be expected to function as intended and that inadequate maintenance prior to 1923 resulted in a steady increase in rough handling, break-in-twos, slid flat wheels, undesired emergency, burst wheels and locomotive air brake failures until operating officers and others began to doubt the ability of the existing standard air brake equipment to meet the requirements of longer, heavier trains and faster schedules. He said, "Had the broad statement been made that the general condition of air brake maintenance, particularly on equipment interchanged, was deplorable prior to 1923, it would have raised a storm of protest, and at that time such a statement would have been branded as a misrepresentation of facts; however, I believe that now such a statement would be accepted without question and it is at present, the general belief that the lack of proper maintenance of existing air brake equipment at that time was largely responsible for the unsatisfactory results obtained from its use, and also that when properly maintained, the standard brake is capable of fulfilling the requirements which present day service demands."

Mr. Wentworth indicated that a considerable number of roads handling heavy passenger traffic or freight trains on heavy grades have for years been forced by necessity to follow a satisfactory system of air brake maintenance for locomotive and car equipment, these maintenance standards, however, being considerably in advance of the general condition. He said that if the recommendations made by the Air Brake, Traveling Engineers' and American Railway Associations and the laws enacted by the Interstate Commerce Commission had been put into effect systematically and simultaneously on all roads, the confidence in the prevailing standard air brake equipment probably would not have been lost.

According to Mr. Wentworth, this lack of confidence due to careless maintenance conditions has brought about several beneficial results as follows:

"1—By concentrating general attention upon the necessity of better maintenance, it will be remembered that an intensive campaign of improvement was started in 1923; the operating heads saw the wisdom of obtaining generous appropriations for that purpose, and the campaign has been faithfully continued up to the present time.

"2—This campaign has proved to be so successful in reducing evils incident to the use of brakes, that it is very generally believed that saving in damage to lading and equipment and the general speeding up of the movement of trains in service, due to the decrease in delays and air brake failures en route, has turned the outlay in air brake maintenance to profitable account, and it is not probable that such appropriations will ever be materially reduced so long as the money is used wisely and continues to show the desired results.

"3—The air brake manufacturers' attention has been centered on the importance of keeping the quality of their product to a high standard and for several years they have continued to improve their shop practice by developing improved machinery, formulating the most exacting inspection and testing methods, to say nothing of the greater care employed in packing and shipping procedure. This improvement has been brought about by large investments in shop equipment without increasing the price. We believe that these efforts are recognized and appreciated by those familiar with the air brake situation, as such.

"4—Recommendations by the Interstate Commerce Commission that an improved freight brake equipment be developed, in which certain additional functions that appear to be desirable or necessary be incorporated, has resulted in the most elaborate and expensive laboratory tests that have ever been undertaken, and it is generally known that these tests are now being conducted at Purdue University, under the direction of the American Railway Association. Upon the completion of these laboratory tests and of road demonstrations in actual service, most valuable information will have been developed. The air brake manufacturers have not been indifferent to the requirements of general progress in transportation and have continually kept a very large engineering force at work in laboratory and field for the purpose of developing improved equipment and maintenance practice to keep pace with the general advancement.

"In their efforts constantly to produce desirable features or additions in new brake equipment, they have met with obstacles that appear to be impossible but they persistently endeavor to overcome these difficulties, with the result that brake apparatus is constantly being improved, and yet, a maximum of interchangeability is maintained in order to get the best service from air brake apparatus in operation to keep our system of maintenance up to a high and practical standard.

"This intensive campaign for better maintenance has also brought about at least three features that, unless guarded against, will prove expensive without giving any beneficial results.

"1—There is quite a tendency, on the part of some supervisors and repairmen to change existing standard equipment before such changes are proved to be real improvements, and these changes are certain to result in an increased cost of maintenance, added storeroom expense and general unnecessary confusion, with no beneficial results.

"It should be understood that standard equipment referred to, is not arbitrarily made by the manufacturers but is brought about through committees from the American Railway Association, Air Brake Association, and where safety is involved, the Bureau of Safety cooperating with the manufacturers, and after such standards have been adopted, they cannot be modified without the consent of those who have made them, particularly where equipment used in interchange is concerned.

"2—There is also a growing tendency to demand a more expensive finish and precision in manufacture beyond the point of adding to general efficiency. This tendency, if carried to the extreme, will ultimately result in increased cost of production to the extent that increase in price may be necessary. Although the costs of production covering a wide range of items have greatly advanced, prices to the consumer have not been affected.

With the comparatively high labor costs in this country, we cannot expect to follow these practices to the same extent that they have been followed in European countries, without paying the price and it is to be hoped that American good sense will govern decisions as to the procedure in practice.

"3—The soap-suds tests on repair tracks and in repair rooms is comparatively new on many roads, and while it is a valuable test for leakage, experience and good judgment on the part of those using it, are necessary in order that the relation may be fixed, between bubbles and pounds per minute leakage."

Mr. Wentworth then outlined what has been done in the last two years to bring about practically satisfactory air brake maintenance conditions by the establishment of brake pipe and cylinder leakage limits, and by better systems of cleaning, lubricating and testing, together with the use of composition brake cylinder packing cups, moisture and dirt removing devices, improved clamping of extra heavy pipe on locomotives, etc. Regarding foundation brake gear, however, he said:

"The foundation brake gear on practically all modern equipment is generally well designed. On rebuilt equipment, more attention is now being paid to bringing the foundation brakes up to a satisfactory standard, but there is room for considerable improvement in that direction.

"The maintenance of foundation brake gear on freight cars is a subject that will probably receive considerable attention during the next year and committees from the A. R. A. and Air Brake Association are now investigating and will probably be in a position to make recommendations that will result in improvement.

"When some of the irregularities caused by improper maintenance of foundation brakes on freight cars are removed, some of the evils for which air brakes have been held responsible, will disappear and general brake efficiency will reach a better standard of excellence.

"As was the case with the air brake before a general campaign for better maintenance was started, there are sufficient rules and recommendations now existing to bring about the desired results when it is decided to start the campaign for better maintenance.

Mr. Wentworth closed his address by calling attention to the need for more careful handling of air brake valves between the time they leave the test racks and are applied to cars or locomotives and also to the necessity for improved buffer and draft gear conditions.

A New Timber Preservative

FACING the possibility of a shortage of creosote as a preservative material for its poles at some future date and also, because of the exhaustion of naturally durable timbers, the necessity of treating the timbers then available for their full length and thereby increasing the demand for preservatives, the Western Union undertook a search for a new preservative some three years ago under the direction of Dr. L. P. Curtin. This company operates and maintains a system of pole lines comprising at least seven million poles, every one of which is set in the ground and subject to decay. It is constantly faced with the necessity of securing large numbers of poles for replacements. It is also aware of the fact that the creosote required to treat creosoted pine poles to the company's standard is already costing as much as the pole itself untreated.

Dr. Curtin's first activities consisted of original research relative to the various fungi which cause timber decay. He found that all decay organisms, at least all of those which are of commercial importance, produce or secrete juices which are acidic in nature. He then undertook to determine whether this acridic reaction of fungi could not be utilized to dissolve toxic chemicals which are normally insoluble in water. It has been generally recognized in the wood preserving industry that a preservative cannot be effective unless it is sufficiently soluble in water to exert a poisonous effect on fungus organisms. Hence, it has been deemed impossible to utilize a permanent, insoluble material for wood preservation, because such a material would have no effect on the decay organisms. However, if a fungus, by acidic secretion, could itself dissolve such materials, it was obvious that there might be certain chemical compounds which would be both so insoluble in water as to be permanent, and yet so toxic as to be effective in killing fungus organisms and preventing decay.

The succeeding investigation, therefore, involved the study of a whole series of chemicals and chemical compounds to determine which ones possessed the necessary toxic and insoluble properties and were also obtainable in large enough quantities and at a low cost. Several interesting possibilities were discovered, but the one material which was found to fulfill all requirements best was zinc meta-arsenite. Not only is this said to possess all the essential properties of a permanent, inexpensive preservative, but it is also simple to use, non-corrosive to steel, and of low electrical conductivity. Its toxicity is also said to be higher than that of any other preservative commercially used today, while the chemicals for producing it are available in abundant quantities.

Even though zinc meta-arsenite was thus proved in the laboratory to have a correct scientific foundation and to possess valuable properties as a wood preservative, it was still necessary to develop accelerated tests which would demonstrate in a short time the results that should be expected over a long period of years. To corroborate these laboratory results, the Western Union Telegraph Company, therefore, made extensive accelerated tests of the new wood preservative, including leaching tests to demonstrate the effectiveness of the new material to resist loss from water and rain and outdoor exposure of treated wood to sun, rain, wind, temperature changes and frost. These tests are said to have shown that zinc meta-arsenite is permanent in the wood and that it retains its full effectiveness against decay organisms. On the basis of these facts the Western Union has adopted zinc meta-arsenite as a standard treatment for yellow pine poles. It is a powder which is transferred into a solution at the treating plant by a representative of the manufacturer who also supervises its injection into the wood, and insures that the wood is in proper condition for treatment. Its cost is slightly greater than that of zinc chloride and less than half that of creosote. It is said that this treatment can be carried on in any treating plant which is equipped for the Rueping process, using initial air pressure and final vacuum. It produces poles that are clean to handle and work upon and can be painted with ordinary paints, if desired. The poles are considerably lighter in weight than creosoted poles, due to evaporation of the water from the treating solution. Although the zinc meta-arsenite process has, so far, been applied only to the treatment of Southern yellow pine poles, plans are now being made to extend its application to other material, including bridge building and car lumber.

This preservative is being promoted by the Curtin-Howe Corporation, 11 Park Place, New York, which company controls its use through patents.

Measure of Locomotive Utilization

Hours of service point out the real losses in utilization—Formulae derived to calculate performance

By George W. Armstrong

LOCOMOTIVE utilization in recent years has been a subject of vital interest. Long locomotive runs, quicker terminal handling and turning, pooled instead of assigned power, all have been advanced as means of increasing locomotive utilization. What, however, do we mean by locomotive utilization? Mileage is the figure most used, "miles per locomotive day."

Is mileage a comparable basis of measuring locomotive utilization? Operating characteristics and the character of traffic may limit mileage, although at the same time a greater portion of the locomotive day is spent in performing useful work. Mileage is a function of speed.

Time, a fixed unit of measure and one that absolutely establishes a measure of service utility as well as service loss, must be used as an effective unit in comparing locomotive performance. There are 24 hours of possible work in any locomotive day. What part of this day is usefully employed in earning revenue? These revenue producing hours are the true measure of locomotive utilization.

Increase in utilization produces increased revenue per locomotive. Hours of locomotive service as a measure of utilization serve forcibly to reflect the loss in locomotive utilization through waiting for trains, terminal delays moving to and from enginehouses, unsystematized running repairs and excessive time for and percentage of locomotives undergoing repairs.

Miles per locomotive day might properly be employed on any individual road as a measure of improvement or loss in service utilization, where the variables of service become more nearly constants. The inequality of locomotive miles per day as a measuring stick of comparison is shown in Fig. 1, comparing the miles per active locomotive as charted in the American Railway Association, Mechanical Division, report on Locomotive Utilization for 1927, with the hours of service per used locomotive.

An analysis of this chart will reveal that the miles per locomotive is not a real basis, as the greatest attainment of miles per day does not reflect the best use made of the locomotive. It would be well to call attention also to the fact that the hours of service would be greater than shown if the same unit were used, i.e., the number of active locomotives. Instead, the hours of locomotive service is based on the *used* locomotives, (the assigned locomotives minus the stored locomo-

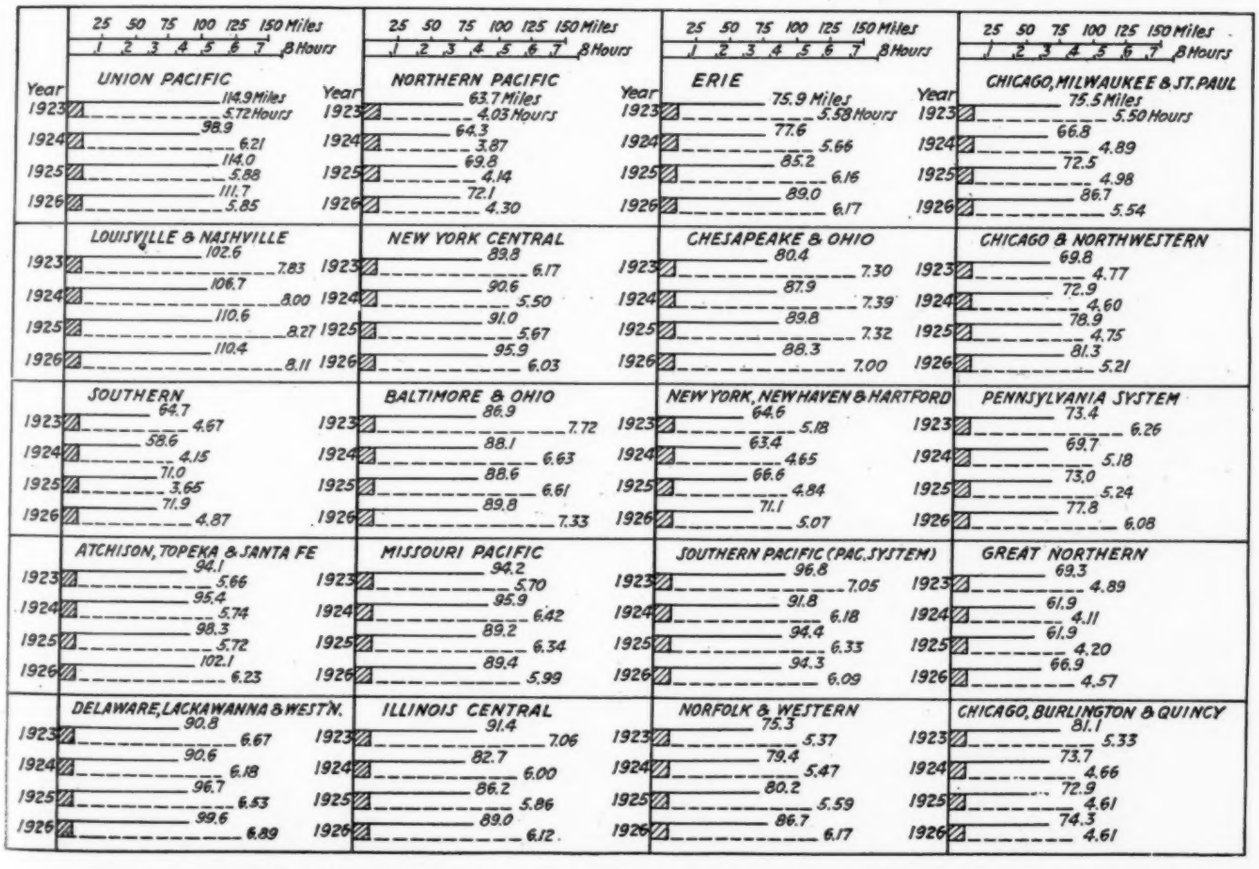


Fig. 1—A Comparison of the Miles per Active Locomotive w ith the Hours of Service per Used Locomotive

tives) which is equivalent to the *active* locomotives plus the *unserviceable* locomotives.

The only unit of measure, which will equate the difference in operating conditions and point the real loss in utilization, is the hours of service. During the operation under the United States Railroad Administration, the compilation of comprehensive statistics bearing on this subject, i.e., "the number of locomotives and distribution of hours, form OS-4" was undertaken. Owing to the volume of work entailed in compiling these statistics and in many cases, the additional expense, their preparation was abandoned upon the termination of the U. S. R. A. period.

Knowledge of the use made of power which knowledge can then be translated into studies for greater utilization require the securing of the hours of service per locomotive. A record, in addition, should be kept at every enginehouse showing the time for outside attention, i.e., coaling, fire cleaning, sanding, etc.; time in enginehouse for inspection and repairs and time held waiting for service.

Fortunately the service time of freight and switch locomotives can be determined within less than five per cent error from existing statistics. Freight service is made up of work in road service between terminals, or road switching.

Calculating Hours of Utilization

The following formula, if all trains were handled by a single locomotive, would give the hours per locomotive in road service:

$$\frac{\text{Freight train hours}}{\text{Number of locomotive} \times \text{Number of days}}$$

Freight train hours to be those for the period considered.

Number of locomotives to be those assigned, active or serviceable, or total assigned engines minus the stored engines for the period under consideration, depending upon the locomotive basis for which utilization desired.

Number of days to be the total in the period during which freight train hours were made.

To compensate for double and triple heading, light mileage, etc., the foregoing formula must be multiplied by a compensating equation of the locomotive miles divided by the freight train miles (taken for the same period as the freight train hours); making the complete formula:

$$\frac{\text{Freight train hours}}{\text{No. of loco.} \times \text{No. of days}} \times \frac{\text{Freight locomotive miles}}{\text{Freight train miles}}$$

The best basis upon which to determine the hours of service is that of engines assigned, disregarding condemned locomotives and those awaiting sale or condemnation, minus serviceable stored locomotives, i.e., the used power. The use of this basis will reflect the varying conditions of maintenance on the different roads as well as on individual roads under different operating characteristics, which will not be the case, if unserviceable engines are eliminated and the hours of service per serviceable locomotive only are determined. It is believed that this percentage of utilization is important enough to warrant its inclusion in the monthly summary of operating statistics prepared by the Bureau of Railway Economics, as well as the important item of stored serviceable locomotives, which latter is at present omitted. The present figure of locomotive miles per locomotive day, being computed on the basis of total locomotive assignment, is very misleading and a deceptive figure owing to the wide variation in the number of locomotives stored.

The use of used locomotives as a basis rather than "Active" locomotives is recommended as the situation with respect to unserviceable power is as important a factor in locomotive utilization as the use made of an active, serviceable locomotive. In fact, the policy with respect to locomotive maintenance and maintenance facilities may have more effect on the possible utility of the locomotive than some of the operating factors to be considered. In this respect, it is interesting to analyze the effect upon the relative standing of several roads having approximately the same mileage per active locomotive day for 1926, if considered on the mileage per used locomotive day.

Table I—Hours of Used Locomotive Service

Road	Miles per active loco. per day	Locomotives: Active	Locomotives: Unserviceable	Per cent Unserviceable	Used locos.	Miles per used loco. per day
A	89.8	932.6	194.3	15.9	1,126.9	74.3
B	89.4	539.2	84.7	13.5	623.9	77.2
C	89.0	752.8	105.1	12.1	857.9	78.1
D	89.0	453.2	112.7	16.6	565.9	71.4
E	88.3	508.1	95.2	14.9	603.3	74.4
F	87.5	308.5	91.6	21.4	400.1	67.5
G	86.7	453.7	55.7	8.9	509.4	77.3
H	86.7	681.1	187.3	17.8	868.4	68.0

The hours of service of freight locomotives in road switching service can be found by the following formula, which time of service should be added to the hours of road service to give the total hours of service.

$$\frac{\text{Road switching miles}}{\text{Number of locomotives} \times \text{Number of days} \times \text{Six}}$$

Switch Locomotive Utilization

The hours of service utilization of switch engines due to the computing of yard switching mileage on an arbitrary basis of six miles per hour, is readily attainable by the following formula:

$$\frac{\text{Yard switching miles}}{\text{Number of locomotives} \times \text{Number of days} \times \text{Six}}$$

Calculating Hours of Passenger Locomotive Utilization

At present no basis exists for the determination of passenger engine utilization, which is most unfortunate. Such a situation could be readily rectified, however, by the determination of passenger train hours.

Table II—Freight Locomotive Utilization Figures Calculated by Use of Formula

Serviceable Freight Locomotives

Month	Freight train hours	Locomotive miles	Freight train miles	Road switch miles	Serviceable locomotives	Hours, road	Service, road and switch	Calculated per cent utilization: Road only	Calculated per cent utilization: Road and road switch	Os-4 per cent	Per cent error: Road only	Per cent error: Road plus road switch
Jan.	105,825	1,268,843	1,076,251	58,711	515	7.79	0.61	32.4	35.0	34.3	—5.55	+2.04
Feb.	83,495	1,048,742	894,469	43,126	510	6.85	0.50	28.5	30.6	29.3	—2.73	+4.45
March	80,087	1,005,317	858,861	47,258	544	5.57	0.47	23.2	25.2	24.2	—4.13	+4.13
April	79,934	967,023	820,233	52,476	571	5.50	0.51	22.9	25.0	23.9	—4.2	+4.61
May	86,808	1,079,911	910,867	54,344	557	5.96	0.52	24.8	27.0	25.5	—2.74	+5.89
June	81,345	1,015,837	857,803	56,699	548	5.86	0.58	24.4	26.8	25.3	—3.56	+5.94
July	83,519	1,057,443	892,154	63,645	553	5.78	0.62	24.1	26.6	25.9	—6.96	+2.70
August	100,956	1,231,870	1,030,595	65,207	567	6.90	0.62	28.7	31.3	29.5	—2.71	+6.11
Sept.	97,375	1,226,170	1,028,604	63,355	565	6.86	0.62	28.6	31.2	30.0	—4.68	+4.00
Oct.	105,062	1,290,641	1,077,616	64,561	563.7	7.23	0.62	30.1	32.7	31.5	—4.45	+3.82
Nov.	100,313	1,216,171	1,028,147	58,907	558.5	7.10	0.59	29.6	32.0	30.7	—3.59	+4.24
Dec.	115,195	1,367,882	1,140,292	74,729	551	8.10	0.73	33.7	36.8	35.4	—4.80	+3.96

The hours of passenger engine utilization could then be found by a formula:

$$\frac{\text{Pass. train hours}}{\text{No. of loco.} \times \text{No. of days}} \times \frac{\text{Loco. miles}}{\text{Pass. train miles}}$$

Typical Freight Locomotive Utilization

The actual working out of these formulae compared with the figures compiled for the OS-4 reports is shown in Tables II and III, covering a year's period. The hours of road service utilization have been based upon the total number of serviceable locomotives, for the reason that the OS-4 reports gave the hours of road service per serviceable locomotive, the hours at terminal, at enginehouse and stored.

The figures for hours of used locomotive service in Table I were obtained by using the formula for freight locomotive utilization, disregarding road switching service.

Divisional Freight Locomotive Utilization Study

An interesting analysis of the fluctuations in possible locomotive utilization is shown in Fig. 2, which covers a trunk line railroad and its operating divisions, except some sparsely operated branch lines. The analysis of the internal operation of a railroad is subject to one influence which does not affect a railroad as a whole and which cannot be controlled. That influence is the service given on adjoining divisions by an engine assigned to a division other than that upon which the service was performed. Emergencies arise when an engine assigned to a division operating east out of a terminal will be used on one to the west, which will be credited with the train hours, locomotive miles and train miles used in the utilization formula, but the division is not charted with the locomotive assignment. Consequently such an internal locomotive utilization study is of value not only in directing attention to the divisions worthy of intensive consideration due to being below the system average.

Table III—Switching Locomotive Utilization Figures Calculated by Use of Formula

SERVICEABLE SWITCHING LOCOMOTIVES

Month	Yard switching miles	Serviceable switch locos.	Hours switch service	Calculated percentage switch service	OS-4 percentage
Jan.	Figures not available				
Feb.	553,422	318	10.34	43.2	43.2
March	557,076	327	9.17	38.3	38.1
April	548,070	327	9.31	38.8	38.8
May	556,806	315	9.52	39.6	39.6
June	546,342	319	9.52	39.6	39.7
July	570,252	325	9.45	39.3	39.3
August	592.146	319	9.98	41.7	41.6
Sept.	592,026	311	10.54	44.1	44.0
Oct.	616,344	310.7	10.67	44.5	44.4
Nov.	601,908	318.2	10.49	43.8	43.8
Dec.	664,320	327.8	10.90	45.5	45.4

A few comments as to the operating characteristics of several of the divisions referred to in the accompanying charts may be of interest.

Division 1—Main line division with several busy branches and local services.

Division 2—Division with a large amount of mine run and pusher service.

Division 3—Approximately 150-mile division, largely through freight.

Division 4—Mine run and coal train service with pushers.

Division 5—Eighty-six-mile division, operated on turn-around service, with heavy interchange transfer service, some double tracked.

Divisions 6 and 8—Largely through freight with division 6 and one district of division 8 having some engines operating through. Engines operated through assigned to division 8.

Division 7—Through freight operation with one local train.

Division 9—Heavy local and through freight in steel mill territory.

Divisions 10 and 11—Main line traffic only with more local service on division 10 than 11.

Factors Influencing Locomotive Utilization

The two most important elements determining maximum locomotive utilization are, first, securing the greatest period of road service time each time the engine is dispatched, and second, the reduction of enginehouse attention and maintenance time to the minimum. Many factors enter into each of these elements, some insurmountable, but many capable of correction.

The time that locomotives must be held from service for general repairs and repairs requiring over 24

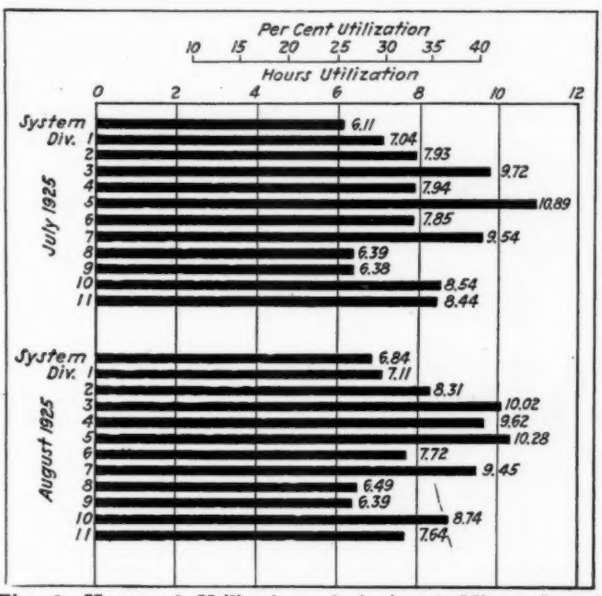


Fig. 2—Hours of Utilization of Assigned Minus Stored Freight Locomotives

hours represents a loss in utilization that will constitute a heavy drain upon possible utilization, if permitted to exceed 15 per cent of the power owned. Even with this maximum percentage of unserviceable equipment, it represents 3.6 hours loss of service, each twenty-four hours for every locomotive owned. It is for this reason that utilization based on used locomotives (total assigned minus stored) rather than active is important.

Power has been and can undoubtedly be turned on runs not exceeding 100 to 150 miles in four or five hours. Such turning time, however, requires well laid out engine terminals, good inspection facilities and a system of thorough maintenance. Assuming as the best attainable performance that the locomotive can be turned in five hours and that the road service time is eight hours, i.e., the basic time for 100 miles, we have the following as a theoretical maximum locomotive utilization.

Non-productive time		
Sanded, coaled, watered and inspected	1 hr. 30 min.	
Running repairs	3 hr. 0 min.	
Preparing engine outgoing	30 min.	
	5 hr.	
Transportation time, handling engine to and from enginehouse and yard	1 hr.	
Total non-productive time while serviceable	6 hr.	
Productive or road service time	8 hr.	
Total allowance for general and heavy repairs based on a maximum of 15 per cent unserviceable	2.47 hr.	
Grand total time required for complete theoretical locomotive cycle	16.47 hr.	
Theoretical maximum percentage of locomotive utilization	48.57 hr.	

When it is realized that trains cannot always be

ready for engines as soon as they are available, that running repairs will vary in extent, that water conditions in some territories will increase the enginehouse handling time, etc., the low utilization secured by many roads is not surprising. It also serves to emphasize the importance of continually watching and studying every element entering into the use made of a $60,000 power plant such as the locomotive.

Assigned engines cannot give the service to be secured from pooled power. Long runs by increasing the time of locomotives on the road without proportionate increase in terminal time are also doing much to bring up the percentage of utilization.

Locomotive utilization presents many interesting angles for study in increasing the extent of that utilization, but it is thought that with the measure of that utilization the used portion of the locomotive day as outlined in this article, a better unit of measure is afforded than "miles per locomotive day" and one which can be better understood in the analysis of and bearing of the factors entering into loss of locomotive utilization, all of which can be similarly measured in units of time.

Survey of Barge Traffic

A REPORT of a survey of the facilities of the Inland Waterways Corporation by the transportation division of the Department of Commerce, expressing the conclusion that if the Mississippi river barge line equipment were ample and its service satisfactory there would be available cargo to the extent of 6,995,424 tons, as compared with the 1,251,276 tons transported by the barge line on the river in 1927, was forwarded to the Secretary of War on January 17 and by him laid before the advisory board of the corporation. The report was made by Norman F. Titus, director of the transportation division, after a traffic survey of the Mississippi and Warrior rivers to ascertain "the present offerings of cargo and the necessities of increase of equipment" of the Inland Waterways Corporation. Representatives of shippers desiring to use the facilities of the barge line to a greater extent because of the reduced rates available when a shipment is moved part of the way via the barge line on a joint rail-and-barge route, have urged that Congress authorize an increase in the capital stock of the corporation to enable it to provide additional equipment; and bills are pending in Congress for that purpose.

In a statement referring to the traffic survey Secretary Davis, of the War Department, said he would favor the desired extensions of barge line service on the Missouri and Illinois rivers, as a "temporary demonstration," if careful surveys of the projects were to indicate a reasonable prospect of successful operation. Preferably, he said, there should be a provision in the authorization bill indicating the conditions under which the line should be disposed of after the demonstration had been completed, and among the general conditions he suggested the following:

"1. When it shall be provided by law that a private water carrier can not be controlled by any competing carrier.

"2. When a sufficiently broad structure of joint rate and through route arrangements with rail carriers, based upon a division of revenue which experience shall have demonstrated to be fair to both rail and water lines, shall have been created. This must be so extensive that the entire public needing this transportation facility may have on fair terms opportunity to obtain this economy in transportation.

"3. When the channels of the Mississippi system shall have been so improved or maintained that the best possible conditions for navigation have been procured, and the system of maintenance so perfected that those conducting Barge Line operations shall have certainty of an available channel.

"4. When satisfactory terminal arrangements shall have been created. Occasionally there may be municipal enterprises towards the creation of which the assistance of the federal government is and will continue to be for some time to come a necessity."

Wage Case in District Court

ARGUMENTS were heard by Federal Judge George A. Carpenter in the United States District Court at Chicago on January 24 and 25, on a motion made by counsel for the Brotherhood of Locomotive Firemen and Enginemen, which if granted would sustain the wage award made to firemen on the western railways by a Board of Arbitration at Denver, Colo., on December 17.

The board reconvened at Denver on December 17, in the absence of the two railroad arbitrators, after it had issued on December 5 a statement of its inability to reach an agreement. Because the award of December 17 was made with no railroad representation on the board, counsel for the railways filed a petition in the District Court to impeach that wage award. The employees then moved before the court to dismiss the petition filed by the railways.

Edward C. Craig, general solicitor of the Illinois Central, and Kenneth F. Burgess, general solicitor of the Chicago, Burlington & Quincy, presented the argument for the railroads, contending that the Board of Arbitration was unlawfully reconvened on December 17, in violation of the provisions of the Railway Labor Act and the agreement to arbitrate. After the filing of the statement of December 5, in which the board declared that the arbitrators were unable to reach an agreement as to the amount of a wage increase, they exhausted their authority to make any further award, it was asserted.

Donald R. Richberg, attorney for the employees, argued that the statement of disagreement could not be considered an award and that the board retained its original authority until the expiration date of December 20, set by the contract between the railroads and the Brotherhood, and within which time the reconvened board met and granted a wage increase.

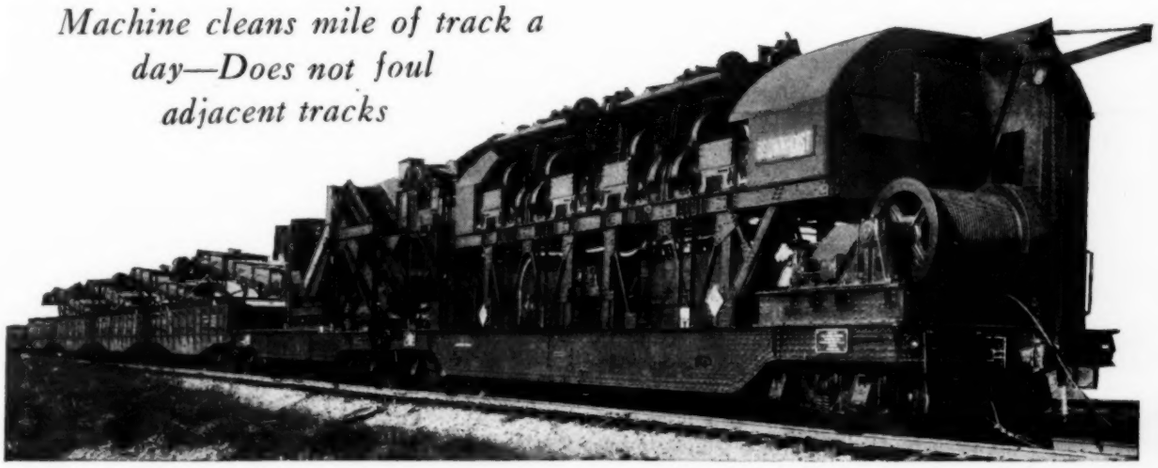
* * *

Wide World

The "King George V" Back Home With a Present (the Bell) from the B. & O.

An Unusual Development in Labor Saving Equipment

Machine cleans mile of track a day—Does not foul adjacent tracks



The Ballast Cleaning Train as Seen From the Forward End

WHAT is probably the most elaborate piece of equipment ever designed to save labor in track work has been developed by the Industrial Brownhoist Corporation, Cleveland, Ohio, for the cleaning of ballast. It is entirely self contained as it develops its own power and is provided with an unusually complete set of controls so that it may be operated with a minimum of attendance. The entire operation is conducted without manual labor except that of cribbing out and replacing the ballast between the ties. The machine as a whole operates within such clearance limits as avoid interference with traffic on adjacent tracks.

The new machine is said to be able to clean the ballast in about a mile of track a day with an operating crew of only seven men, while service tests have indicated the possibility of cleaning ballast successfully in wet as well as dry weather. This feature alone is expected to result in the addition of two months each year to the period in which ballast-cleaning operations are usually carried out under present methods.

The ballast-cleaning machine consists primarily of equipment carried upon two cars, each supported on four-wheel trucks and, considering the two cars as a unit, having an over-all coupled length of approximately 100 ft. In addition to the machine itself the work train accompanying the machine may consist of several dirt cars upon which are mounted belt conveyors designed to transfer the refuse from the cleaning machine directly into these cars. The entire equipment

Side View of the Front Car Showing the Buckets in Front and to the Rear of the Adjustable Plow

is operated by electric motors deriving their current from a generator set consisting of a six-cylinder 330-hp. gasoline engine direct-connected to a 200-kw. generator. This generator set supplies all of the power required to operate the various units comprising the ballast-cleaning equipment and for the movement of the entire machine along the roadway as it performs its work.

The movement of the equipment on the track is accomplished by an electric haulage unit through the use of a cable which is secured at some distance from the machine to a locomotive which acts merely as a "deadman." On the first car on which the machine is mounted, beginning at the end toward the locomotive, is the motor-driven drum for the hauling cable and beside this in an enclosed cab are the controllers for the forward bucket and the air brake equipment for stopping the machine. Two clam-shell buckets of one-half yard capacity perform separate functions. One of these buckets is controlled from the forward cab while the operation of the other bucket is controlled from the cab near the opposite end of the car. The buckets operate in channel guides which prevent them from swinging beyond a point midway between the centers of a double track roadway. With the exception of a single part described later, no part of the machine, while in operation or otherwise extends beyond this midpoint between the two tracks.

Between the two buckets is located a plow which is raised and lowered on guides at an angle of approximately 45 deg. in a vertical plane crosswise of the car and controlled by separate controllers and an independent operator. In the bucket compartments are located the receiving hoppers, underneath which is a conveyor which transports the uncleaned ballast to the rear end of the first car, preparatory to dumping it on another conveyor leading to the cleaning screens.

The gasoline engine generator set is located on one side of the rear end of the first car. On the opposite side is the conveyor line previously mentioned, underneath the slope of which is located a motor-driven compressor set that furnishes all of the compressed air required for the operation and control of the ballast-cleaning machine, making it unnecessary to draw any air from the train line. On the second or rear car are located the conveyors which receive the uncleaned ballast from the conveyor on the first car and transport it to specially designed vibrating screens which separate the refuse from the ballast and in turn dump it into a dirt chute from which it is carried by a conveyor to the rear end of the second car while the cleaned ballast is dropped into a separate hopper preparatory to distribution along the track. At the rear end of the second car is a boom loader by means of which the refuse may be dropped on either side of the track or dumped into the receiving hopper of a belt conveyor line mounted on the first of a series of dirt cars. The conveyor lines mounted on the dirt cars are arranged in such a manner that the refuse may be scraped off the conveyor belt at any desired point in a car or carried on to other dirt cars in the train.

In operation, the ballast-cleaning machine, together with the accompanying dirt cars, is moved by a locomotive to the desired point along the right-of-way. A snatch block is attached to the rear of the locomotive, which is in turn moved out slowly along the track ahead of the machine until practically the full length of cable has been run out. The locomotive brakes are then set and the ballast-cleaning machine is moved forward by winding the cable on the electrically-operated drum. The machine is designed for a movement of approximately seven feet for each grab of the buckets, the maximum opening of each bucket being eight feet. The forward bucket digs up the ballast from a point adjacent to the ends of the ties under the track on which the machine is operating to a point midway between the two tracks and to a maximum depth of 24 in. below the ties, depending upon the condition of the roadbed. Behind the forward bucket is the plow, the depth of which is adjustable. The plow digs out the ballast previously untouched by the forward bucket and throws the material into the excavation made by the forward bucket. This material is then picked up by the rear bucket. As previously mentioned, both buckets, when raised to their maximum height and opened, drop the material into the receiving hoppers, whence it is transported to the cleaning equipment, after which the screened ballast is finally laid down in the trench made by the buckets in picking the material up. The screened ballast hopper is provided with an adjustable scraper so that the ballast may be placed in the trench smoothly and at any desired depth.

* * * *

Ewing Galloway

Santa Fe Station, Topeka, Kans.—Shop Buildings at Right

New Books

Lincoln and the Railroads, by John W. Starr, 325 pages, 5½ in by 9 in., illustrated, bound in cloth. Published by Dodd Mead & Company, Inc., New York.

This new book written by the author of "Lincolniana," "Lincoln's Last Day," etc., is a biographical study of the life of Abraham Lincoln with particular reference to his relations with the railroads. It is not commonly appreciated how extensive these relations were and that Lincoln, developing as a rising young lawyer in a period contemporaneous with the early struggles and achievements of the railroads, frequently represented them and at times appeared against them. He was on numerous occasions engaged by the Illinois Central, the Chicago & Alton and other roads. His reputation for the successful handling of difficult cases became such that the Chicago, Rock Island & Pacific retained him in the famous Rock Island bridge case in which he first announced and defended the principle that one man has as much right to go across a river as another has to go up or down. There is considerable evidence that in the spring of 1860, Lincoln declined an offer of $10,000 a year to become general counsel for the New York Central. Later, as president, he contributed substantial aid and encouragement to the founders of the Union Pacific. The book, containing considerable previously unpublished material and numerous rare illustrations, will prove of intense interest to any Lincoln enthusiast or student of early railway history.

Books and Articles of Special Interest To Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Commercial Survey of the Southeast, by John M. Hager. "Commodity movements and distribution" on pp. 141-159 show revenue traffic carried and per cent originating on line by groups of commodities for individual railroads, year 1925. U. S. Dept. of Commerce Domestic Commerce Series no. 19. 447 p. Pub. by U. S. Govt. Print. Off., Washington, D. C., $1.

Trade Association Activities, prepared by Irving S. Paull, J. W. Millard and James S. Taylor. Chap. 13, "Traffic and transportation service bureaus"; Chap. 15, "Railways and other public utilities" and Chap. 16, "Automobiles, airplanes and highways." U. S. Dept. of Commerce Domestic Commerce Series no. 20. 381 p. Pub. by U. S. Govt. Print. Off., Washington, D. C., 75 cents.

Periodical Articles

Flying and Eating My Way East, by Will Rogers. On airplane transport between Los Angeles and the East, comparing it with some older forms of transport as to speed, costs, comfort, and so on. Saturday Evening Post, January 21, 1928, p. 3-4, 110, 113-114, 117.

Grease Lubrication and Notes on the Working of Locomotives in Canada and the United States, by N. A. Shove. "This paper does not profess to be in any way an exhaustive treatise on the subject . . . The most that can be said is that the paper consists of a few notes made while visiting the two principal railways of Canada . . . and the two chief railways running into New York, i. e., the New York Central and the Pennsylvania Railways" p. 625. The discussion, pp. 643-659, brings out practice and experiments on other U. S. railways as well as several in India, South America, and Germany. Journal of the Institution of Locomotive Engineers, November-December, 1927, p. 625-643.

Railway Salesmanship and Public Relations Work, by J. Blumenfeld Scott. Contact and prestige—how they may be obtained and retained. Journal of the Institute of Transport, January, 1928, p. 160-167. Discussion, p. 168-170

Looking Backward

One Hundred Years Ago

A charter was granted to the Ithaca & Owego Railroad Company [later the Cayuga & Susquehanna and now a part of the Delaware, Lackawanna & Western] on January 28, 1828, for the Construction of a railroad between Ithaca, N. Y., and Owego, 35 miles.

Fifty Years Ago

The report of the Canadian Commissioner of Public Works shows that during 1877 more than 209 miles of railroad were constructed in Canada, all within the province of Ontario. Ontario now contains more than half of the 6,103 miles of railway in operation in Canada.—*Railway Age,* January 31, 1878.

In answer to inquiries submitted by Congress, the President has transmitted to that body an opinion of the Attorney General to the effect that under existing laws the executive has no power to compel the Union Pacific to prorate with the Kansas Pacific (now part of the former company) on through business.—*Railroad Gazette,* January 25, 1878.

The Sabine Pass & Northwestern (now a part of the Texas & New Orleans) has graded, tied and bridged 51 miles of road since May 1, 1876. The charter provides for the construction of a railroad from Sabine Pass, Tex., on the Gulf of Mexico to Denison, 340 miles, and includes a land grant of 10,240 acres to the mile.—*Railroad Gazette,* January 25, 1878.

A simple device has lately been attached to the cars of the California & Oregon (now a part of the Southern Pacific) express train to enable the conductor or any other person on the train to apply the air brakes by simply pulling the bell cord. The device has not yet proven entirely reliable and is considered as an experiment.—*Chicago Railway Review,* January 26, 1878.

Twenty-Five Years Ago

Daniel Willard, heretofore third vice-president of the Erie, has been elected first vice-president, with headquarters at New York.—*Railway Age,* January 30, 1903.

On January 22 Senator Elkins introduced a bill into the Senate that is intended to embody proposed anti-trust legislation so far as it relates to railways. It contains the provisions recommended by the Attorney General for the punishment of those who receive as well as those who give rebates, provides for the punishment of corporations by fines instead of imprisonment of their representatives and requires courts to issue injunctions to prevent discriminations. The bill was referred to the committee on interstate commerce.—*Railway Age,* January 30, 1903.

Ten Years Ago

The number of stockholders of the Pennsylvania, for the first time in the history of the company, has passed the 100,000 mark. Of the total of 100,038 stockholders 49,492 are women.—*Railway Review,* January 26, 1918.

The railroads have again been placed at the top of the preference list for coal in connection with an order given by the fuel administrator suspending certain lines of industry for five days beginning January 18, to be followed by nine heatless Mondays on which the use of fuel, except by consumers for whom it is classed as absolutely necessary, is prohibited.—*Railway Age,* January 25, 1918.

Odds and Ends of Railroading

Four-toned whistles and handsomely furnished steam-heated cabs, says the Chicago Daily News, are features of giant new locomotives. "Being used to anything, we don't object to the four-toned whistle, but romance flies with the high toned cab. In addition to a time-table, the railroads may have to issue a musical program for their new key-bugle locomotives, of course, subject to change without notice."

I. L. Kelly, district freight agent of the Southern Pacific at Oakland, Cal., claims to be the champion mountain climber among railway men. Kelly has climbed all of the highest peaks in the west, all over 14,000 ft., including Mt. Whitney, 14,501 ft., the highest mountain in the United States. Kelly's next objective is Mt. Popocatepetl in Mexico, whch is nearly 18,000 ft. high.

An interesting athletic performance made by a railway man 34 years ago has recently been unearthed. F. S. Beedleson, agent of the New York Central at Canajoharie, N. Y., lost a leg in an accident when he was 11 years old, but, nonetheless, in 1893, he performed the remarkable feat of riding across the country from San Francisco to New York in 55 days on a one-sided bicycle. This record has never been equalled.

According to a Mercedes, Texas, paper, all of the fellows with long service records which have been run in those columns are mere pikers. This paper reports that Wills Carter, recently appointed assistant general freight and passenger agent of the Southern Pacific at Harlingen, Texas, has been in the service of that line for 177 years. The S. P. Bulletin comments that it's about time for him to retire and give some young fellow a chance.

A most interesting claim has just been settled on the Oregon Short Line. A shipment of horses from Rupert, Idaho, was left overnight in the yards at Pocatello, Idaho, and the next day one of the horses was dead and several others were injured. The shipper maintained that the damage was caused by rough handling and, in the lower courts, obtained a judgment for the loss. The state supreme court, however, has just reversed the decision and has placed the blame on a horse named "Dutch," which the testimony showed, was a very vicious beast and, conceiving a violent antipathy to his traveling companions, had attempted to kill them all.

One Born Every Minute—Sometimes Two

Until recently, when an investigation of its activities somewhat curtailed their scope, the General Research Foundation, with offices at all the important cities on the West Coast, has been collecting "donations for scientific research." It is perhaps unfortunate that various regulating bodies have interfered with their "researches," since one of their many projects might have been a great boon to the traveling public. It consists of developing a passenger train that would be capable of attaining a speed not less than 1,000 miles an hour on land or sea, or in the air.

Still, Small Voices

Christmas mail brought to J. M. Doyle, superintendent of the Great Northern at Spokane, two unexpected and unusual packages. The first package opened contained the greeting scrawled in pencil on a piece of blank paper: "Hey, this is for a stolen ride" and signed "Merry Christmas." The package contained a pocket match box, from which, when opened, rolled 60 cents in silver coins. The second package contained a more substantial remittance of a similar character. It was a draft for $34.43 to pay for a ride from Spokane to Minot, N. D. 20 years ago, at a time when there was considerable unemployment. Much of the ride was in a box car, the writer explained. The draft, however, came as the result of an inquiry made later by the person writing from Portland and asking the amount of the fare for the ride he had taken sometime in 1907.

Resourceful Trainmen

C. L. Earl, a chief dispatcher of the Central Vermont, writing in "The Train Dispatcher" for January, gives interesting details of the experiences of the men of that road in the disastrous floods of November 2-5, last. The dispatcher's office at St. Albans—which, like dispatchers' offices generally, is the nerve center of the railroad which it serves—was particularly so in this case, the dispatcher being among the most important sources of information for the Associated press and other representatives of the public. Speaking of the resourcefulness of the employees in various critical situations, Mr. Earl mentions among others the following:

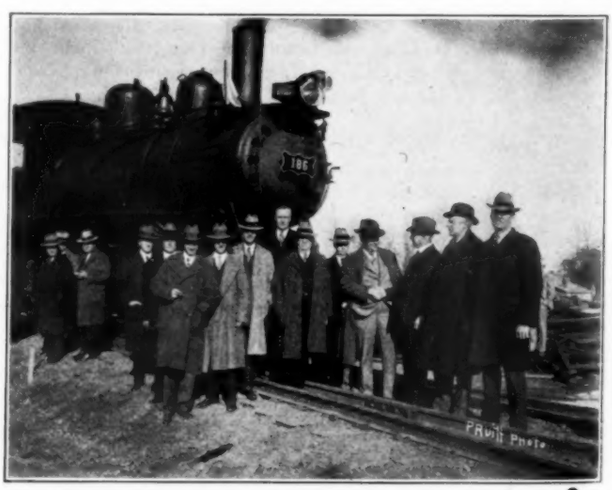
At Randolph, where there was a local freight and a passenger train, the crews obtained an empty coal car, dumped the loads of granite that were loaded on two flat cars, hired every available man, and started building a railroad each way, with dirt dug from banks along the track.

At Bethel a small switch engine had been salvaged, rerailed and two or three flat cars also rerailed, and this equipment was found drawing stone from a deserted stone quarry to which they had laid a track.

At South Royalton a bridge gang was marooned with a pile driver. Learning that a bridge had been washed out a few miles south, they (obtaining permission from the local authorities) built a wye on the village park, turned the driver and were back at the bridge driving piles when communication was restored.

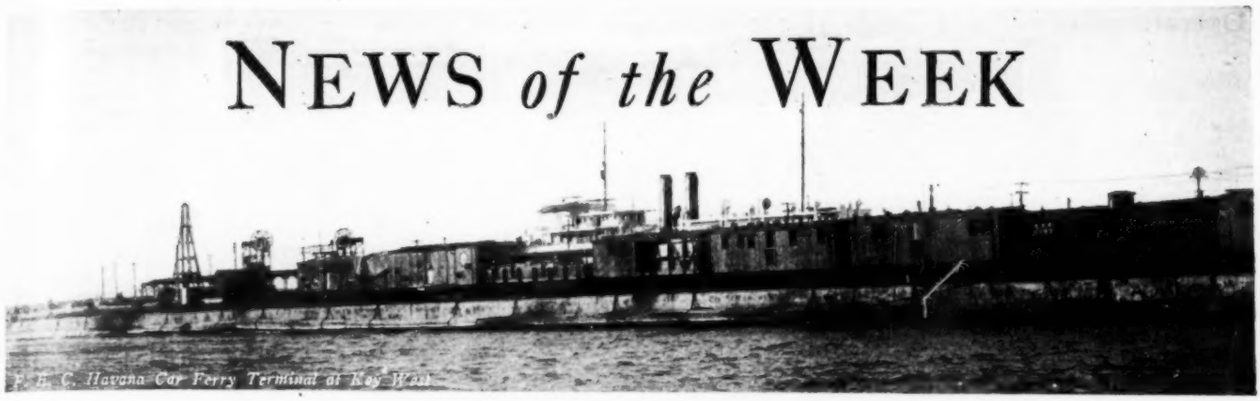
A Gala Day in Columbus

The whole town turned out to welcome the first passenger train of the St. Louis-San Francisco into Columbus, Miss., on December 16. The city declared a holiday and more than 5,000 citizens constituted themselves a reception committee. A general celebration was held, attended by a number of executive officers of the Frisco, including Vice-Presidents Koontz and Miller. Columbus is on the new line being built to connect the



Frisco with the recently acquired Muscle Shoals, Birmingham & Pensacola. At present the line is only open for service between Amory, Miss., and Columbus, 30 miles, but rails have been laid as far as Aliceville, Ala. The accompanying illustration shows a group of railway, city and state officers welcoming the Frisco into Columbus.

NEWS *of the* WEEK



F. E. C. Havana Car Ferry Terminal at Key West

THE ISSUANCE of a special series of postage stamps commemorative of the one hundredth anniversary of the first run of a locomotive in America on August 9, 1829, at Honesdale, Pa., is proposed in a bill introduced in Congress by Representative McFadden, of Pennsylvania.

CORRECTION.—The Baltimore & Ohio installed 137 flashing-light highway crossing signals in 1927 and not 137 of the wig-wag type as indicated in Table J, "Automatic Highway Crossing Protection," on page 75 of the January 7 issue of the *Railway Age*.

T. P. ARTAUD, supervisor of land appraisals in the Bureau of Valuation of the Interstate Commerce Commission, who has been connected with the commission's valuation work since it started in 1914, has resigned to become director of research of the National Association of Owners of Railroad and Public Utility Securities, Inc., with office at Washington, D. C.

TELEGRAPH EMPLOYEES on the Atchison, Topeka & Santa Fe have been granted a wage increase of 3 cents an hour, effective January 1, 1928, following a three-day conference of representatives of the Order of Railroad Telegraphers and officers of the railroad which closed on January 19. About 2,900 employees, including telegraphers, telephone operators, towermen and block operators are affected by the new agreement. The previous wage scale ranged from 48 cents to $1 an hour.

Anti-Scalping Bill Introduced

Representative Montague, of Virginia, has introduced in Congress a bill, H. R. 9290, to make unlawful and to provide penalties for, fraudulent dealings in tickets, passes or other evidence of passenger transportation, including forging, altering, counterfeiting or sale for more or less than the published tariff rate. A similar bill was introduced at the last session of Congress.

Porter Confirmed as Member of I. C. C.

The Senate Committee on interstate commerce on January 20 ordered a favorable report on the nomination of Claude R. Porter, of Des Moines, Ia., for appointment as a member of the Interstate Commerce Commission to succeed H. C. Hall, and on January 23 the Senate voted to confirm the appointment. Mr. Hall has resumed the practice of law, with office at Washington.

R. C. Fulbright, chairman of the legislative committee of the National Industrial Traffic League, has asked the Senate committee for an opportunity to be heard in public hearings in connection with the confirmation of the reappointment of Commissioner Esch, if the committee is going to consider arguments based on his vote in any particular case. The League does not wish a hearing if this issue is not to be brought up.

Long-Train Radio on New York Central

The New York Central has, during the past week, made experimental runs between Selkirk (near Albany) and Utica, N. Y., 95 miles, with long freight trains equipped with radio apparatus for telephoning from the caboose to the engineman and vice versa. With trains of 125 cars, the experiments have proved very satisfactory. The apparatus is that of the General Electric Company, redesigned and improved since the experiments which were made last year.

The apparatus is low-power, and transmission is between 109 and 130 meters. It is said that there was no interference with other radio senders nor was the railroad apparatus disturbed by outside communications. No storage batteries are used on the locomotive, the apparatus being energized by the headlight generator; and the caboose apparatus is operated by storage battery charged by belt-drive from the axle of the car. Loud speakers are used at both ends of the train.

This apparatus was described and illustrated in the Railway Electrical Engineer for December, 1927.

Equipment Installed in 1927

Class I railroads in 1927 installed in service 75,386 freight cars, according to reports filed with the Car Service Division of the American Railway Association. This was a decrease of 28,614 freight cars as compared with the number installed in 1926 and a decrease of 53,036 under that for 1925. Of the total, box cars numbered 32,210; coal cars 29,060, and refrigerator cars, 6,019. The average carrying capacity per freight car on January 1, 1928, was 45.7 tons, as compared with 43.1 tons on January 1, 1923, or an increase of 6 per cent.

Freight cars on order on January 1 this year totaled 13,057, as compared with 21,242 one year ago.

Locomotives placed in service in 1927 totaled 1,955, a decrease of 444 compared with 1926 but an increase of 222 over 1925. The average tractive power increased 4,982 pounds per locomotives or 13.2 per cent. Class I railroads on January 1, 1928, had 93 locomotives on order, as compared with 329 on January 1, 1927.

These reports as to freight cars and locomotives include new and leased equipment.

B. & M. and M. I. T. Establish Cooperative Course in Railroad Operation

The creation of a cooperative course in railroad operation, combining scientific instruction at Massachusetts Institute of Technology, with fundamental practical training on the Boston & Maine, has been announced jointly by the Institute and the Boston & Maine. The new course, which has been under consideration for nearly a year, will be carried out under the department of civil engineering of the Institute, and will consist of four years of undergraduate instruction, one summer camp, a full year of postgraduate work, and one special summer term. Dovetailed with this technical instruction, will be a year and one-half of practical employment on the B. & M., the two parts of the course alternating at intervals after the second year of undergraduate instruction.

The course will include the fundamental subjects of civil and electrical engineering, such as bridge construction, earthwork, and electrical equipment, the latter subject including signals, communication systems and train lighting, as well as the characteristics of terminal and trunk line electrification. Much time will also be given to the study of passenger and freight traffic, steam locomotive operation and maintenance, auxiliary means of transportation, and railroaad accounting and administration. In obtaining the practical side of the training, those taking the course will be employed for limited periods in the engineering, mechanical, operating and executive departments of the Boston & Maine, receiving a definite monetary compensation for their work.

(*Continued on page 254*)

Operating Statistics of Large Steam Railways—Selected Items for November, 1927 Com-

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles: Principal	Locomotive-miles: Light and helper	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross, Excluding locomotive and tender	Ton-miles (thousands): Net, Revenue and non-revenue	Average number of locomotives on line: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region:												
Boston & Albany	1927	407	218,603	232,287	24,829	5,208	66.7	276,467	106,930	102	16	13.6	5
	1926	407	242,171	262,947	29,723	5,289	67.0	284,513	114,391	104	15	12.7	5
Boston & Maine	1927	2,075	476,686	559,668	59,587	12,422	69.6	653,701	259,037	254	60	19.0	11
	1926	2,140	500,941	589,402	53,238	13,602	68.2	727,600	299,689	293	70	19.3	24
N. Y., New H. & Hart.	1927	2,140	589,626	643,529	42,939	17,062	67.5	901,009	365,864	335	48	12.5	48
	1926	2,158	606,623	639,102	47,086	17,014	66.7	928,913	394,707	313	75	19.4	14
Great Lakes Region:												
Delaware & Hudson	1927	875	354,863	480,609	54,315	10,217	64.9	643,056	315,605	245	32	11.5	66
	1926	875	381,264	522,436	59,096	11,335	65.7	733,404	377,608	247	44	15.0	61
Del., Lack. & Western	1927	999	548,049	625,281	73,119	17,677	66.4	1,025,609	438,948	243	49	16.8	7
	1926	999	593,592	688,187	81,423	19,242	69.7	1,097,503	496,477	282	53	15.9	13
Erie (inc. Chi. & Erie)	1927	2,317	936,385	1,018,011	74,629	35,910	61.9	2,204,779	900,175	424	129	23.3	16
	1926	2,323	1,065,289	1,173,554	133,519	38,116	63.9	2,358,593	1,038,386	546	120	18.0	51
Lehigh Valley	1927	1,345	584,615	638,898	80,331	17,835	62.5	1,085,441	463,606	353	87	19.8	37
	1926	1,345	627,431	695,635	90,681	19,344	63.6	1,175,191	529,612	401	68	14.6	50
Michigan Central	1927	1,820	522,722	532,380	19,235	16,070	59.5	910,436	319,154	221	67	23.1	63
	1926	1,835	544,148	559,635	20,093	17,494	61.8	982,978	373,256	239	56	19.0	57
New York Central	1927	6,478	1,903,489	2,122,464	161,898	69,941	60.4	4,293,040	1,773,319	1,053	318	23.2	263
	1926	6,482	2,198,627	2,507,376	175,060	80,434	61.1	5,054,958	2,229,917	1,134	294	20.6	208
New York, Chi. & St. L.	1927	1,665	585,191	591,857	7,274	18,978	63.0	1,057,250	388,857	171	48	21.9	47
	1926	1,665	674,822	680,081	6,988	20,399	66.4	1,119,876	444,252	230	56	19.7	38
Pere Marquette	1927	2,180	424,387	429,488	5,756	10,548	61.1	639,673	270,317	183	42	18.7	11
	1926	2,179	468,782	476,229	8,142	11,205	63.9	649,440	273,504	189	30	13.7	8
Pitts. & Lake Erie	1927	231	109,077	109,871	2,204	3,772	58.4	302,633	167,429	58	18	23.1	18
	1926	231	153,736	156,659	2,896	5,413	61.8	425,050	245,407	62	17	21.2	11
Wabash	1927	2,497	675,561	706,601	12,453	19,993	62.5	1,145,241	423,086	314	56	15.2	71
	1926	2,497	761,243	793,401	13,738	22,456	65.6	1,284,413	524,871	330	49	13.0	46
Central Eastern Region:												
Baltimore & Ohio	1927	5,540	1,889,243	2,232,580	184,217	53,510	59.4	3,617,827	1,669,868	1,023	248	19.5	196
	1926	5,519	2,274,993	2,578,227	205,462	64,138	60.1	4,414,576	2,143,312	1,065	204	16.1	12
Central of New Jersey	1927	691	263,130	284,909	45,108	7,343	57.3	493,880	233,352	184	31	14.3	23
	1926	691	282,647	308,636	35,017	7,969	60.4	531,836	262,045	216	44	16.9	24
Chicago & Eastern Ill.	1927	945	267,635	269,055	3,489	6,733	58.5	443,684	198,330	104	49	31.8	24
	1926	945	295,689	296,332	4,401	7,807	60.3	506,503	239,039	124	40	24.6	32
Clev., Cin., Chi. & St. L.	1927	2,374	689,396	719,532	18,202	21,075	60.7	1,378,850	632,446	330	92	21.7	34
	1926	2,374	787,109	821,771	24,459	23,974	59.6	1,622,582	772,132	343	85	19.8	30
Elgin, Joliet & Eastern	1927	461	122,080	128,800	6,001	3,291	60.7	254,455	131,255	80	11	12.1	...
	1926	460	137,707	146,833	7,239	3,578	56.4	290,140	146,490	79	11	11.8	1
Long Island	1927	396	47,858	53,009	15,263	628	55.8	41,438	15,966	51	12	19.7	...
	1926	393	53,011	59,990	16,050	704	56.8	45,813	17,993	53	12	18.0	...
Pennsylvania System	1927	10,849	4,130,021	4,567,238	374,539	125,674	61.4	8,354,201	3,748,338	2,898	375	11.4	772
	1926	10,882	5,264,141	5,783,198	460,561	148,375	62.3	10,209,798	4,931,847	2,870	450	13.6	194
Reading	1927	1,131	602,579	655,340	62,780	15,954	58.6	1,142,144	566,695	315	82	20.7	39
	1926	1,129	708,335	778,701	79,714	18,999	61.1	1,359,815	717,803	331	69	17.3	14
Pocahontas Region:												
Chesapeake & Ohio	1927	2,706	1,092,741	1,179,635	44,618	34,875	55.4	2,842,597	1,510,403	543	99	15.5	60
	1926	2,651	1,290,211	1,373,439	50,152	40,878	55.3	3,376,253	1,835,100	543	94	14.8	9
Norfolk & Western	1927	2,231	764,082	929,475	33,331	26,275	58.7	2,127,771	1,120,471	544	47	7.9	138
	1926	2,231	999,754	1,227,967	55,833	34,907	58.5	3,024,342	1,702,440	551	55	9.0	74
Southern Region:												
Atlantic Coast Line	1927	5,100	747,865	751,741	12,288	18,505	58.7	1,074,401	404,083	422	57	11.9	99
	1926	4,931	796,687	804,388	13,098	20,746	61.0	1,182,027	457,808	442	45	9.2	73
Central of Georgia	1927	1,898	261,008	262,264	5,935	6,571	68.8	354,804	146,475	138	22	13.7	8
	1926	1,905	322,320	325,190	6,083	7,706	69.4	431,471	194,399	155	17	10.1	6
Ill Cent. (inc. Y. & M. V.)	1927	6,594	1,882,216	1,899,347	43,108	49,223	57.7	3,329,952	1,362,754	770	109	12.4	18
	1926	6,555	2,036,316	2,049,706	48,406	54,219	61.4	3,566,085	1,563,399	762	105	12.2	7
Louisville & Nashville	1927	5,048	1,593,943	1,655,362	53,150	32,515	58.3	2,255,814	1,068,292	620	106	14.6	35
	1926	5,021	1,799,124	1,884,438	57,219	35,208	58.3	2,482,386	1,199,140	602	117	16.2	9
Seaboard Air Line	1927	4,282	545,531	560,200	11,118	14,045	63.0	806,443	313,672	226	63	21.9	25
	1926	3,971	607,576	621,235	12,193	15,726	64.4	927,577	392,131	250	43	14.6	5
Southern Railway System	1927	8,021	1,859,614	1,886,457	31,560	47,408	62.2	2,681,677	1,041,272	1,057	161	13.2	96
	1926	8,050	2,121,904	2,160,016	40,609	51,520	63.6	2,983,451	1,234,467	1,086	170	13.5	40
Northwestern Region:												
Chi. & North Western	1927	8,478	1,411,247	1,466,788	24,979	34,090	60.3	2,085,404	784,060	808	126	13.5	136
	1926	8,461	1,511,960	1,551,817	26,020	35,130	60.6	2,107,888	825,560	749	160	17.6	110
Chi., Milw. & St. P.	1927	11,204	1,643,599	1,740,047	103,081	47,004	62.9	2,799,968	1,182,934	828	138	14.3	145
	1926	11,184	1,680,805	1,781,556	102,519	47,505	63.8	2,793,657	1,204,392	828	174	17.4	123
Chi., St. P., Minn. & Om.	1927	1,724	312,663	336,569	15,717	6,603	63.6	373,287	148,828	164	28	14.7	28
	1926	1,724	329,294	355,156	16,276	6,380	63.1	363,950	147,310	156	31	16.6	2
Great Northern	1927	8,163	951,938	983,873	59,857	33,119	67.7	1,973,310	901,231	581	89	13.3	87
	1926	8,166	1,000,479	1,036,119	58,010	34,068	66.8	2,038,747	920,345	587	118	16.7	77
Minn., St. P. & S. Ste. M.	1927	4,368	557,370	572,187	5,841	13,694	66.2	744,481	324,527	222	25	10.2	13
	1926	4,372	545,872	560,459	3,968	13,336	69.3	703,335	313,853	300	26	8.0	17
Northern Pacific	1927	6,486	858,475	916,348	52,121	28,027	69.5	1,577,285	711,145	478	140	22.7	56
	1926	6,510	839,197	886,653	50,895	26,811	69.5	1,483,616	654,494	506	129	20.3	66
Oreg.-Wash. R. R. & Nav.	1927	2,154	211,537	222,235	15,395	6,150	69.4	363,872	165,106	138	14	9.1	3
	1926	2,161	203,428	215,850	19,058	5,893	69.7	346,904	155,462	143	18	11.2	9
Central Western Region:												
Atch., Top. & S. Fe (including P. & S. F.)	1927	10,414	1,779,958	1,931,489	107,450	55,093	59.1	3,448,678	1,198,181	786	174	18.1	110
	1926	10,275	2,047,391	2,208,394	112,764	62,580	62.0	3,801,741	1,418,067	809	153	15.9	67
Chicago & Alton	1927	995	288,472	305,530	2,957	6,802	59.5	429,056	159,220	131	21	13.6	26
	1926	1,022	335,454	369,605	5,049	7,678	59.0	498,547	210,676	134	25	15.8	22
Chi., Burl. & Quincy	1927	9,332	1,588,014	1,651,838	69,346	47,089	60.8	2,870,128	1,290,499	746	162	17.8	8
	1926	9,349	1,701,249	1,775,946	66,382	48,999	59.7	3,057,144	1,382,255	793	188	19.1	25
Chi., Rock I. & Pacific	1927	7,575	1,285,386	1,333,951	13,764	32,108	61.5	1,894,238	748,125	560	113	16.8	75
	1926	7,568	1,339,823	1,380,448	21,818	32,276	65.7	1,816,700	754,347	525	144	21.5	46
Denver & R. G. Wn.	1927	2,561	339,710	401,792	66,259	8,620	62.4	530,446	235,083	248	39	13.6	11
	1926	2,563	293,913	358,444	68,541	7,835	65.8	458,689	203,585	227	43	15.9	13
Oregon Short Line	1927	2,539	361,887	386,744	32,186	10,147	63.3	630,260	253,870	195	18	8.5	27
	1926	2,537	327,713	354,051	34,737	9,292	63.8	572,493	236,603	190	25	11.8	29
So. Pacific—Pacific Lines	1927	8,770	1,511,236	1,637,190	223,435	43,873	61.5	2,702,111	998,287	739	207	21.8	80
	1926	8,721	1,489,693	1,622,248	228,874	44,962	62.6	2,707,737	1,024,550	742	233	23.9	77
Union Pacific	1927	3,712	1,157,541	1,189,031	58,000	41,028	62.5	2,469,197	902,431	437	48	9.9	108
	1926	3,713	1,081,402	1,107,608	51,405	39,431	67.1	2,246,046	844,501	487	39	7.4	130
Southwestern Region:												
Gulf, Colo. & S. Fe	1927	1,933	323,181	331,922	9,194	10,149	59.4	650,458	273,457	145	19	11.4	35
	1926	1,933	428,916	456,122	14,667	12,542	59.8	807,307	348,916	139	16	10.6	2
Mo.-Kans.-Tex.	1927	1,787	244,704	245,334	5,171	8,409	57.8	509,606	190,865	102	23	18.5	36
	1926	1,787	259,053	260,054	5,386	8,968	63.2	512,291	203,455	96	28	22.7	26
Mo.-Kans.-Tex. of Texas	1927	1,389	186,985	191,285	3,139	5,485	61.4	311,348	120,105	105	11	9.2	43
	1926	1,389	207,594	213,699	4,387	6,111	63.2	339,239	133,408	110	24	17.6	40
Missouri Pacific	1927	7,356	1,323,052	1,351,950	39,483	35,346	61.6	2,158,103	907,540	561	76	11.9	33
	1926	7,311	1,414,439	1,458,782	44,684	39,168	63.8	2,358,563	1,049,376	551	84	13.3	1
St. Louis-San Francisco	1927	4,926	774,109	787,355	8,491	18,408	59.3	1,138,664	461,889	400	54	11.9	61
	1926	4,874	806,078	828,930	15,225	19,346	64.0	1,139,645	484,323	434	61	12.3	58
Texas & New Orleans	1927	4,575	771,997	774,380	2,019	16,551	62.5	989,841	396,081	262	53	16.9	16
	1926	4,469	728,734	731,146	3,481	15,919	67.5	898,534	370,856	261	59	18.3	25
Texas & Pacific	1927	2,015	378,440	378,440	3,293	10,039	57.9	631,370	235,350	175	24	12.2	8
	1926	1,954	313,075	313,075	2,942	8,456	65.1	475,427	179,419	157	33	17.2	13

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

pared with November, 1926, for Roads with Annual Operating Revenues above $25,000,000.

Region, road and year	Average number of freight cars on line: Home	Foreign	Total	Per cent unserviceable	Gross ton-miles per train-hour, excluding locomotive and tender	Gross tons per train, excluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car miles per car-day	Net-ton miles per mile of road per day	Pounds of coal per 1,000 gross ton-mile including locomotive and tender	Locomotive miles per locomotive day
New England Region:													
Boston & Albany.....1927	2,930	5,747	8,677	2.9	15,290	1,265	489	20.5	411	30.0	8,757	155	72.8
1926	1,956	5,630	7,586	2.9	15,104	1,175	472	21.6	503	34.7	9,370	182	81.8
Boston & Maine.....1927	12,723	15,306	28,029	6.7	13,495	1,371	543	20.9	308	21.2	4,161	134	65.8
1926	11,127	18,069	29,196	6.4	14,865	1,452	598	22.0	342	22.8	4,668	138	59.0
N. Y., New H. & Hart...1927	18,588	20,532	39,120	11.1	18,633	1,528	621	21.4	312	21.5	5,699	125	59.7
1926	18,015	27,710	45,725	17.2	18,144	1,531	651	23.2	288	18.6	6,097	133	59.0
Great Lakes Region:													
Delaware & Hudson.....1927	8,250	6,456	14,706	4.0	21,367	1,812	889	30.9	715	35.7	12,023	152	64.4
1926	7,546	7,903	15,449	4.5	22,557	1,924	990	33.3	815	37.2	14,382	136	66.6
Del., Lack. & Western...1927	16,533	8,378	24,911	4.5	22,555	1,871	801	24.8	587	35.6	14,642	140	79.8
1926	14,056	12,522	26,578	4.0	21,886	1,849	836	25.8	623	34.6	16,561	150	76.5
Erie (inc. Chi. & Erie)..1927	31,921	21,112	53,033	4.2	28,730	2,355	961	25.1	566	36.5	12,949	131	65.9
1926	31,184	25,198	56,382	6.9	25,426	2,214	975	27.2	614	35.2	14,901	136	65.4
Lehigh Valley 1927	22,112	10,404	32,516	10.3	25,909	1,857	793	26.0	475	29.2	11,486	151	54.4
1926	20,104	13490	33,594	7.1	24,243	1,873	844	27.4	526	30.2	13.121	159	55.9
Michigan Central 1927	19,745	12,960	32,705	4.1	26,783	1,742	611	19.9	325	27.5	5,847	121	63.9
1926	14,399	18,000	32,399	4.1	24,898	1,806	686	21.3	384	29.1	6,781	125	65.5
New York Central.....1927	69,694	67,092	136,786	4.6	28,443	2,255	932	25.4	432	28.2	9,125	116	55.5
1926	55,369	79,458	134,827	3.4	26,361	2,299	1,014	27.7	551	32.6	11,467	123	62.6
New York, Chi. & St. L..1927	13,962	10,319	24,281	5.8	24,946	1,807	664	20.5	534	41.4	7,786	110	91.4
1926	9,739	12,299	22,038	6.0	21,858	1,660	658	21.8	672	46.5	8,894	124	79.9
Pere Marquette 1927	9,862	8,521	18,383	3.9	18,968	1,507	637	25.6	490	31.3	4,133	109	64.4
1926	8,580	11,244	19,824	3.6	15,773	1,385	583	24.4	460	29.5	4,184	126	73.8
Pitts. & Lake Erie.....1927	13,518	6,642	20,160	6.0	31,534	2,774	1,535	44.4	277	10.7	24,112	99	49.2
1926	7,553	11,512	19,065	4.0	28,248	2,765	1,596	45.3	429	15.3	35,342	117	68.2
Wabash 1927	16,488	11,187	27,675	2.5	27,154	1,695	626	21.2	510	38.6	5,648	127	64.7
1926	13,032	14,472	27,504	2.6	23,497	1,687	689	23.4	636	41.5	7,007	143	70.9
Central Eastern Region:													
Baltimore & Ohio.....1927	74,856	31,757	106,613	5.6	21,124	1,915	884	31.2	522	28.2	10,048	160	63.4
1926	63,086	46,935	110,021	4.3	18,579	1,940	942	33.4	649	32.3	12,945	174	73.1
Central of New Jersey...1927	18,197	10,971	29,168	6.3	19,449	1,877	887	31.8	267	14.6	11,259	158	51.2
1926	14,073	14,226	28,299	4.2	17,184	1,882	927	32.9	309	15.5	12,643	171	44.2
Chicago and Eastern Ill..1927	13,148	4,124	17,272	31.1	22,315	1,658	741	29.5	383	22.2	6,995	139	59.6
1926	11,658	5,084	16,742	26.6	22,196	1,713	808	30.6	476	25.8	8,431	150	61.2
Clev., Cin., Chi. & St. L.1927	21,597	20,854	42,451	4.2	26,177	2,000	917	30.0	497	27.3	8,881	128	58.4
1926	13,507	22,372	35,879	5.1	25,000	2,061	981	32.2	717	37.4	10,841	132	65.9
Elgin, Joliet & Eastern...1927	9,107	6,682	15,789	5.7	15,005	2,084	1,075	39.9	277	11.5	9,491	137	49.4
1926	9,302	7,156	16,458	4.4	13,492	2,107	1,064	40.9	297	12.8	10,615	153	57.1
Long Island 1927	1,965	5,899	7,594	1.3	4,728	866	334	25.4	70	4.9	1,345	334	36.2
1926	1,651	7,752	9,403	0.8	4,551	864	339	25.6	64	4.4	1,525	360	39.2
Pennsylvania System 1927	212,641	80,250	292,891	6.4	23,480	2,023	908	29.8	427	23.3	11,517	130	50.3
1926	192,481	106,552	299,033	6.4	19,549	1,939	937	33.2	550	26.6	15,107	143	62.7
Reading 1927	27,209	12,858	40,067	2.5	21,097	1,895	940	35.5	471	22.7	16,696	156	60.2
1926	18,370	21,826	40,196	3.1	19,846	1,920	1,013	37.8	595	25.8	21,191	160	71.6
Pocahontas Region:													
Chesapeake & Ohio.....1927	33,063	11,380	44,443	3.0	30,871	2,601	1,382	43.3	1,133	47.2	18,608	100	63.6
1926	28,506	13,397	41,903	2.9	26,974	2,617	1,422	44.9	1,460	58.8	23,076	106	74.4
Norfolk & Western.....1927	31,764	8,313	40,077	1.1	37,583	2,785	1,466	42.6	932	37.2	16,737	145	54.3
1926	31,194	12,824	44,018	1.5	35,993	3,025	1,703	48.8	1,289	45.2	25,432	144	70.7
Southern Region:													
Atlantic Coast Line.....1927	23,441	9,831	33,272	5.6	19,083	1,437	540	21.8	405	31.6	2,641	111	53.2
1926	20,981	14,264	35,245	3.4	17,646	1,484	575	22.1	433	32.2	3,095	122	56.0
Central of Georgia.....1927	4,312	4,902	9,214	4.5	18,885	1,359	561	22.3	530	34.6	2,573	139	55.9
1926	4,331	6,430	10,761	5.4	18,157	1,339	603	25.2	602	34.4	3,402	155	64.2
Ill. C. (inc. Y. & M. V.).1927	41,477	24,380	65,857	6.5	23,785	1,769	724	27.7	690	43.2	6,889	137	73.7
1926	37,259	30,972	68,231	3.2	21,729	1,751	768	28.8	764	43.1	7,950	143	80.7
Louisville & Nashville...1927	44,773	17,128	61,901	10.0	17,159	1,415	670	32.9	575	30.0	7,054	159	78.5
1926	38,882	18,851	57,733	12.4	15,946	1,380	667	34.1	692	34.9	7,960	170	90.0
Seaboard Air Line.....1927	15,422	9,121	24,543	7.3	18,129	1,478	575	22.3	426	30.3	2,442	142	65.9
1926	13,379	11,597	24,976	4.1	17,240	1,527	645	24.9	523	32.6	3,291	140	72.2
Southern Railway System.1927	57.437	26,829	84,266	7.0	19,512	1,442	560	22.0	412	30.1	4,327	152	52.5
1926	51,732	32,988	84,720	5.3	17,766	1,406	582	24.0	486	31.9	5,112	163	58.4
Northwestern Region:													
Chi. & North Western...1927	46,525	29,553	76,078	6.2	18,935	1,478	556	23.0	344	24.8	3,083	132	53.2
1926	46,740	32,654	79,394	6.1	17,484	1,394	546	23.5	347	24.3	3,252	147	57.9
Chi., Milw. & St. P.....1927	52,889	24,771	77,660	5.3	21,762	1,704	720	25.2	508	32.1	3,519	139	63.6
1926	51,575	28,217	79,792	5.2	19,944	1,662	717	25.4	503	31.1	3,589	151	62.7
Chi., St. P., Minn. & Om.1927	2,619	9,336	11,955	9.2	15,169	1,194	476	22.5	415	29.0	2,878	128	61.1
1926	3,160	9,260	12,420	12.3	13,859	1,105	447	23.1	395	27.1	2,849	150	66.3
Great Northern.....1927	41,646	15,370	57,016	3.8	23,598	2,073	947	27.2	527	28.6	3,680	138	51.9
1926	41,440	16,764	58.204	4.5	23,428	2,038	920	27.0	527	29.2	3,757	138	51.7
Minn., St. P. & S. Ste. M.1927	20,532	6,536	27,068	3.6	16,399	1,336	582	23.7	400	25.5	2,477	115	78.0
1926	19,354	5,817	25,171	3.6	15,257	1,288	575	23.5	416	25.5	2,393	125	57.7
Northern Pacific.....1927	35.480	10,609	46,089	6.3	22,843	1,837	828	25.4	514	29.1	3,655	158	52.2
1926	33,888	10,052	43,940	6.1	22,118	1,768	780	24.4	497	29.3	3,351	149	49.2
Oreg.-Wash. R. R. & Nav.1927	7,913	4,194	12,107	5.7	21,109	1,720	781	26.8	455	24.4	2,555	175	52.0
1926	7,622	4,380	12,002	3.5	20,654	1,705	764	26.4	432	23.5	2,398	183	48.7
Central Western Region:													
Atch., Top. & S. Fe (in- 1927	54,617	18,903	73,520	5.7	27,646	1,938	673	21.7	543	42.2	3,835	119	70.8
cluding P. & S. F.)....1926	48,636	25,123	73,759	4.8	24,805	1,857	693	22.7	641	45.6	4,600	126	80.5
Chicago & Alton.....1927	9,963	4,647	14,610	4.3	19,320	1,487	552	23.4	363	26.1	5,334	171	67.7
1926	8,407	6,425	14,832	5.5	17,362	1,486	628	27.4	473	29.2	6,872	188	78.3
Chi., Burl. & Quincy....1927	47,130	22,709	69,839	4.4	23,576	1,807	813	27.4	616	37.0	4,610	140	63.2
1926	44,475	25,014	69,489	3.8	22,449	1,797	812	28.2	663	39.4	4,928	151	62.6
Chi., Rock I. & Pacific..1927	31,725	21,141	52,866	5.8	18,635	1,474	582	23.3	472	32.9	3,292	149	66.8
1926	29,978	25,191	55,169	6.8	16,860	1,356	563	23.4	456	29.7	3,323	161	69.9
Denver & R. G. Wn.....1927	10.846	5,667	16.513	2.6	16,017	1,561	692	27.3	474	27.9	3,060	203	54.5
1926	10,292	6,135	16,427	2.5	15,983	1,561	693	26.0	413	24.2	2,647	201	52.7
Oregon Short Line.....1927	8,504	6,297	14,801	3.0	22,697	1,742	702	25.0	572	36.1	3,333	126	65.6
1926	7,815	4,918	12,733	3.4	23.345	1,747	722	25.5	619	38.1	3,108	131	60.1
Southern Pac.-Pac. Lines.1927	35,587	25,657	61,244	6.4	22,644	1,788	661	22.8	543	38.8	3,795	127	65.6
1926	32,581	25,841	58,422	6.2	22,059	1,818	688	22.8	585	41.0	3,916	129	63.3
Union Pacific.....1927	20.379	10,890	31,269	8.8	35,964	2,133	780	22.0	962	70.0	8,103	116	85.8
1926	19,082	11,373	30,455	8.5	33,783	2,077	781	21.4	924	64.3	7,581	122	73.4
Southwestern Region:													
Gulf, Colo. & S. Fe.....1927	9,310	5,402	14,712	3.7	28,533	2,013	846	26.9	620	38.7	4,716	98	69.5
1926	9,363	7,676	17,039	3.6	23,531	1,882	814	27.8	683	41.1	6,017	115	101.2
Mo.-Kans.-Tex. 1927	9,465	4,213	13.678	4.7	28,447	2,083	780	22.7	465	35.4	3,560	103	66.8
1926	8,063	4,711	12,774	4.8	25,841	1,978	785	22.7	531	37.0	3,795	109	71.6
Mo.-Kans.-Tex. of Texas.1927	299	9,419	9,718	9.8	21,340	1,665	642	21.9	412	30.6	2,882	106	56.3
1926	252	10,626	10,878	8.2	20,287	1,634	643	21.8	409	29.6	3,201	110	54.5
Missouri Pacific 1927	28,280	20,052	48,332	5.2	21,417	1,631	686	25.7	626	39.6	4,112	135	72.8
1926	24,121	26,785	50,906	5.0	20,671	1,667	742	26.8	687	40.2	4,785	136	78.9
St. Louis-San Francisco. 1927	21,729	10,650	32,379	3.6	18,751	1,481	597	25.1	476	31.9	3,125	160	58.5
1926	18,072	14,870	32,942	3.9	17,298	1,414	601	25.0	490	30.6	3,312	169	57.0
Texas & New Orleans...1927	11,618	16.099	27,717	5.2	17,309	1,282	513	23.9	476	31.9	2,886	110	82.1
1926	10,564	17,912	28,476	4.8	16,076	1,233	509	23.3	434	27.6	2,766	121	76.6
Texas & Pacific.....1927	6,398	8,558	14,956	5.8	19,656	1,668	622	23.4	525	38.7	3,893	112	63.8
1926	5,708	7,329	13,037	3.9	18,105	1,519	573	21.2	459	33.2	3,061	120	55.5

News of the Week

(Continued from page 251)

Hours of Service Report for 1927

The Interstate Commerce Commission has issued its annual statistical analysis of the reports made by the railroads under the law forbidding the employment of trainmen and telegraphers beyond a certain number of hours each day. It is for the 12 months ending June 30, 1927, in which time there were 12,737 instances of trainmen being on duty beyond the hours specified in the law (Table 1); 961 instances of other presumptive violations of the law in the cases of trainmen; 17,610 cases of telegraphers in offices continuously operated day and night and 669 cases in offices operated only during the daytime; the limit in these latter being 13 hours a day, while in the 24-hour offices it is nine hours a day.

Table 1 gives the totals for each road for each hour. For example, the number of cases of men kept on duty 17 hours, the number kept for 18 hours, 19 hours and so on. There are over 900 cases of men on duty over 24 hours continuously. These 12,737 cases in Table 1 are again classified in Table 2, according to the causes (as reported by the railroads) of the delays to trains which necessitated the excessive hours of work.

Table 4 summarizes by roads the principal data for five years. In Table No. 2, there are 262 roads, this apparently being all of those which made reports for 1927; but in Table No. 4 there are 536 roads. The totals of all instances for the five years are as follows:

1923	65,413	1926	42,200
1924	48,222	1927	32,265
1925	37,497		

I. C. C. Appropriation Passed

The independent offices appropriation bill, carrying appropriations amounting to $7,654,745 for the Interstate Commerce Commission, was passed by the House on January 24 and sent over to the Senate.

During the debate Representative Newton, of Minnesota, urged an increase in the general appropriation for the commission of $81,100, representing the amount by which the Bureau of the Budget reduced the figure requested by the commission. The commission had asked for this additional amount to provide for the employment of 25 additional examiners so as to enable it to keep more nearly abreast of its work. Mr. Newton said that the commission is the agent of Congress and that it ought to be "extremely solicitous about the way the commission is furnished funds to carry out our work." He pointed out that if the commission were to do nothing else for 23 months it would take it all that time to dispose of the 2,800 cases now pending. He said the appropriations committee had recommended all that the budget bureau had estimated, with a slight addition for printing expenses, but that he hoped that either in the House or the Senate the additional $81,100 could be added.

Representative Hoch took occasion to discuss the work of the commission under the Hoch-Smith resolution, saying that a federal court in California had just refused an injunction asked by 48 railroads against the commission's decision in the California deciduous fruit rate case. He said the results from the resolution have not been as rapid as many had hoped but that the ralroads "have thrown every sort of obstacle in the way of the commission," and that the resolution had brought about some reductions in rates as well as prevented some increases asked by the roads. He said the railroads had asked for increases in grain rates, not with the expectations of getting them, but by way of offset against requests for reductions.

The Proposed I.C.C. Index

The Senate has adopted a resolution, S. Res. 17, for the purpose of reducing somewhat the work involved in complying with the resolution adopted last year, proposed by Senator Hawes, directing the Interstate Commerce Commission to prepare an index and digest of its decisions, and decisions of the courts interpreting the act which the commission administers. The original resolution asked the commission to report its work to the Senate by October 1, 1927, but the commission found it impossible to comply though it expended some $15,000 on the work in 1927. The new resolution directs the preparation of a manuscript, to be printed later by the Senate, covering the text of those provisions of law which are administered by the commission, or affect the commission's work, powers or duties, or which the commission decides should be included so as to make available a comprehensive publication of the federal laws relating to the regulation of carriers. The commission's work, under the original resolution is about 50 per cent completed.

Accounting Hearings to Be Resumed

The Interstate Commerce Commission has announced that hearings before Commissioner Eastman and Examiner Bunten on depreciation charges of telephone companies and steam railroads and the general revision of accounting rules for steam railroads will be resumed at Washington on March 14 and that the program will be in the following order: Presentation of further evidence on behalf of railroads on depreciation, presentation of evidence by telephone companies, presentation of further interest on behalf of interests other than railroads on the accounting rules and cross-examination of witnesses, to be followed by cross-examination of railroad witnesses and then telephone witnesses on depreciation. Announcement as to the further course of the proceedings will be deferred for the present.

A People's Safety Board Proposed

A bill proposing the creation of a People's Safety Board, "to assure protection for the people by providing inventors and others who have meritorious appliances an opportunity to demonstrate them for the benefit of the people," has been introduced in the House by Representative Newton, of Minnesota, by request, as H. R. 9686. Apparently the term "meritorious devices" means particularly automatic train control inventions, because without further mention of the subject the bill provides that the board shall select railroads for trial installations and assess the cost against them. The board would then be authorized, after investigation, to decide on the "most practical appliance" to be installed uniformly on the railroads throughout the nation within three years. Then the board would apportion to each inventor the percentage he should receive from the sale of "said train control" and for his service in bringing about train-control installation. The board also would be directed to investigate appliances for controlling automobiles at grade crossings.

Status of Interurban Lines Questioned

Questions as to the jurisdiction of the Interstate Commerce Commission over the issuance of securities by railroads using electricity as a motive power but which engage generally in the transportation of freight as well as passengers in interstate commerce are raised in a complaint filed with the Interstate Commerce Commission by Hitt & Miller in behalf of a committee representing security holders of the Chicago, North Shore & Milwaukee. The complainants purchased stock of that company, which, with other securities, was issued without authority having been obtained from the commission under section 20a of the interstate commerce act. Their object, they say, is to obtain a formal adjudication by the commission of the question whether it has jurisdiction over the issuance of securities by this company; and it is stated that there is no desire to invoke the criminal penalties provided in the law. The question of what electric railways are under the jurisdiction of the commission has been a much disputed one because of the different language employed in various parts of the act where attempts have been made to include or exclude the different kinds of electric, street or interurban railways.

Ticket Scalping Decreases

A decrease in the scalping of railroad tickets in the United States is indicated in the report of the Railway Ticket Protective Bureau for the six months ending December 31. At Kansas City only one instance of ticket scalping (by a hotel porter) was revealed during observations made on stores and persons suspected of ticket scalping during the summer season. Denver (Colo.) newspapers during the six months were comparatively free from objectionable advertisements offering railroad tickets for sale. The number of the Bureau's warning letters sent by the local passenger association of the terminal lines to persons inserting ambiguous advertisements in newspapers decreased from 348 in 1926 to 239 in 1927.

Investigations covering hotels, motor coach stations and independent coast steamship lines have resulted in increased co-operation on the part of hotels, newspapers and the Army, Navy and Marine Corps. Evidence of scalping summer tourist tickets was secured against a former hotel porter whom the bureau

had repeatedly persecuted for ticket scalping. The man was represented by an attorney who entered a plea of guilty and asked for leniency. The judge questioned the Bureau's witness, who explained that the defendant was an old offender who had been served with both state and federal court injunctions and had been arrested for scalping several times. The judge sentenced the defendant to six months in the county jail, and stipulated that in the event that it was revealed that the man handled any more railroad tickets, the court should be immediately advised and the man would be punished by further imprisonment. The judge also compelled the defendant to return to the Bureau's witness the $50 paid for the railroad ticket, saying he was not entitled to this money.

At Coronado Beach, Cal., the proprietor of a rooming house sold the return portion of a summer tourist ticket which was confiscated on presentation for passage. The buyer of this ticket filed a complaint against the rooming house proprietor, who was found guilty of selling the non-transferrable transportation and was fined $25 and costs.

At Chicago over 20 motor coach stations and offices were called on and tested for railroad tickets during September, but none could be purchased. The motor coach line employees admit that occasionally a return portion of a railroad ticket is offered to them. They do not buy these tickets outright, but will at times secure the names and addresses of holders of such tickets and try to bring seller and purchaser together. Tests made covering the entire field indicate that few if any railroad tickets are sold through this source.

Perfect Platform Not a Positive Duty

The Supreme Court of the United States holds that a station platform is part of a railroad company's "works" under section 51 of the Federal Employers' Liability Act, making a carrier liable for injury to its employees because of defect due to its negligence in its "works" etc.

The action was one for injuries to a female station agent who slipped and fell in a depression in the "chat" platform in front of the steps leading to the waiting room. The depression had been made by water dripping from the gutterless eaves of the station building. It was about 4 in. deep and, due to the slope, its bottom was about 12 in. lower than the highest part of the platform. It was about 4 ft. square and had existed since the agent took charge about six months before. Darkness prevailed as the agent was entering the building; there was about 3 in. of snow on the platform, with ice under the snow. The woman tripped on something rough in the depression.

The Supreme Court holds that the measure of the railroad's duty in such cases is reasonable care in the circumstances. It was not required to have any particular type or kind of platform, or to maintain it in the safest and best possible condition. The agent's knowledge of the situation and any danger existing was at least equal to that chargeable against the railroad. It was not required to give her warning. Its failure to remove the snow and ice violated no duty owed to the agent. The facts were held not sufficient to sustain a finding that the railroad failed in any duty owed to the agent. Judgment for the plaintiff (313 Mo. 492) was reversed.—Missouri Pacific v. Aeby. Decided January 3, 1928. Opinion by Mr. Justice Butler.

First Semi-annual Meeting of A. S. S. T.

The American Society for Steel Treating will hold its first semi-annual meeting on February 15-17 at the Mount Royal Hotel, Montreal. The board of directors, and the committees on recommended practice and publication will meet on February 15. The technical sessions will open on February 16, at 9:30 a. m., continuing each day throughout the morning, afternoon and evening.

Following the technical session on February 16, those in attendance at the meeting will have the choice of visiting the plants of the Canadian Steel Foundries, Ltd., and the Canadian Vickers, Ltd., or the Dominion Engineering Works, Ltd., and the Dominion Bridge Company, Ltd. The former companies manufacture locomotive frames, railroad castings, hydro-electric castings and aeroplanes. The latter companies are manufacturers of paper machinery, oil stills and tank work and also do some heavy construction work. During the afternoon a paper on hardness testing will be read by H. M. German, Universal Steel Company, Bridgeville, Pa.

At the evening session, V. T. Malcolm, Chapman Valve Manufacturing Company, Indian Orchard, Mass., and V. O. Homerberg, Massachusetts Institute of Technology, Cambridge Mass., will present a paper on the manufacture of stainless steel castings in the various industries. W. J. Merten, Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., will discuss the heat treatment of forgings and castings for selective directional adjustment of residual stresses, and Dr. F. C. Langenberg, Climax Molybdenum Company, New York, will speak on the modern trend in metallurgy.

At Friday's sessions, the following papers will be presented: Effects of antimony, arsenic, copper and tin in high speed tool steel, H. J. French and T. G. Digges, Bureau of Standards, Washington, D. C.; some general thoughts on fusion welding, S. W. Miller, Union Carbide & Carbon Research Laboratories, Long Island City, N. Y.; types of failure of steel, Robert Job, Milton Hersey Company, Ltd., Montreal; some failures of locomotive parts, an study of same under the microscope, F. H. Williams, Canadian National, Montreal; alloy steel for boilers, Charles McKnight, International Nickel Company, New York; the effect of heat treatment on the properties of chromium-molybdenum sheet steel, F. T. Sisco and D. M. Warner, Wright Field, Dayton, Ohio, and a note on the hardness and impact resistance of chromium nickle steel, B. F. Shepherd, Ingersoll-Rand Company, Phillipsburg, N. J.

Traffic

The extension of the Cowlitz, Chehalis & Cascade from Sticklin, Wash., to Cowlitz, 13 miles, completing the line between Cowlitz and Chehalis, was opened to traffic on January 1.

The Mississippi-Warrior Barge Line has established a tri-weekly express service from St. Louis and Cairo to New Orleans. Three barges, which will accept both carload and less than carload consignments, will be used.

The regular meeting of traffic officers and representatives of the Pere Marquette, held at Buffalo, N. Y., last week, was turned into a celebration of the twenty-fifth anniversary of the opening of the Pere Marquette through to Buffalo. J. E. Clark, assistant general freight agent at Buffalo, was commercial agent there in 1903.

The St. Louis-San Francisco in conjunction with the Alabama, Tennessee & Northern, effective February 1, will establish a 42-hr. fast freight service between St. Louis, Mo., and Mobile, Ala. The new service is made possible by the completion of the Frisco's line into Aliceville, Ala., where a connection is made with the Alabama, Tennessee & Northern. The new train will leave St. Louis at 1 p. m. and will arrive in Mobile at 7 a. m. the second morning. Returning it will leave Mobile at 6 p. m. and will arrive in St. Louis at 12 noon the second day.

The Traffic Club of Kansas City held its annual meeting on January 25 with W. L. Allen, president of the Sheffield Steel Corporation as the principal speaker. Officers elected for the ensuing year were: president, George F. Macgregor, executive general agent of the St. Louis-San Francisco; first vice-president, G. L. Walker, traffic manager of the Continental Oil Company; second vice-president, A. C. Burrows, general agent, passenger department, New York Central; secretary-treasurer, A. A. Luttrell, traffic agent of the Chicago & Alton.

Postmaster General Suggests Air Landing Fields

A suggestion that the space over railroad terminal tracks in large cities, such as at the Union Station in Washington be used for landing decks for airplanes was made by Postmaster General New in an address before the Building Manager and Owners' Association in New York on January 17. "I have some reason to believe," he said, "that the railroads are already giving thought to this."

Fourth-Section Departures Resulting from Changes in Classification

Upon further reconsideration the Interstate Commerce Commission has affirmed, in a report made public January 12, the finding of its original report, 129 I. C. C.

187, denying unlimited relief from the provisions of the fourth section with respect to classification changes. In the original report the commission granted certain fourth section relief but denied the application for permission to make changes without regard to the provisions of the fourth section; and the matter was later re-opened on petition of the carriers concurred in by numerous shippers and shippers' organizations.

Normally hundreds of classification changes are made annually, the report says, but since the service of the original report practically none have been made except in compliance with formal orders, because the carriers say that it has been practically impossible to make them in compliance with the requirements. In order to facilitate such changes, however, the commission authorizes a tariff rule providing for the prompt correction of fourth section departures resulting from classification changes and for reparation.

Some Southern Rates Suspended

Several features of the new class rates filed by the railroads, effective January 15 in compliance with the findings of the Interstate Commerce Commission in connection with its southern class rate investigation, were suspended by the commission until August 15 because of protests filed. One feature was the cancellation of class rates applying between Jacksonville and Tampa, Port Tampa and Ybor City, Fla., on traffic moving under commodity rates beyond Jacksonville and Florida Transfer. Another was the proposed increased joint through class rates between Buffalo, Pittsburgh and other western termini of eastern trunk lines and points east thereof in Trunk Line and New England territories, to points in Kentucky. The commission also suspended the minimum class rates for application between Official Classification territory and points in Southern Classification territory in connection with the new through interterritorial class rates.

N. E. Shippers' Board

The New England Shippers' Advisory Board held its eighth regular meeting at Worcester, Mass., on January 11, with an attendance of 521, the largest in the history of the Board. The 49 commodity committees made very full and detailed reports, a summary of which shows a forecast for the first three months of this year of 1.3 per cent increase in car loadings as compared with 1927. This average, however, is made up of about 20 increases, 14 decreases and 14 items in which no change is expected. Building and monumental stone is expected to increase 10 per cent, cotton and cotton products, 10 per cent; grain 10 per cent; iron, 10 per cent; machinery, 10 per cent; petroleum, 10 per cent and lumber 7 per cent. The committees expect decreases as follows: Builders' supplies, 25 per cent, canned goods, 30 per cent; ice, 10 per cent; potatoes, 10 per cent and scrap metals, 10 per cent.

Reports of traffic conditions in various parts of the country were given by Messrs. Kendall and Randall of the American Railway Association. A banquet given by the Worcester Traffic Association to the members, on the evening of January 10, was addressed by S. E. Winslow, chairman of the U. S. Board of Mediation and Wm. F. Garcelon, chairman of the New England Shippers' Advisory Board.

Roads Ask Increase in Mail Pay

Oral argument was heard by the Interstate Commerce Commission on January 20 in the railway mail pay case, in which the railways are seeking an increase of 40 per cent in the rates for the transportation of the United States mails, on the ground that under the space basis of payment they are hauling twice as much mail as in 1917 while their total compensation increased only from $74,165,246 in 1917 to $96,326,466 in 1926. The Railway Mail Pay Committee was represented by Fred H. Wood. C. H. Blatchford, general solicitor of the Maine Central, presented the argument for the New England roads, that are seeking separate consideration, and Moultrie Hitt argued on behalf of 173 short lines that are asking for rates based on separate consideration of the circumstances of each.

Joseph T. Stewart, special assistant to the Postmaster General, presented the department's argument for a reduction in rates, based on a separation of revenues and expenses attributable to the different classes of service which he said shows that the railroads are earning 6.18 per cent on the investment devoted to mail service. He asked the commission to establish rates by geographical districts and also to make a distinction between railroads earning more or less than 5¾ per cent.

Indian Detour Chain

The Santa Fe Transportation Company, a subsidiary of the Atchison, Topeka & Santa Fe, effective in May, will rearrange its Indian detour in New Mexico by shortening the present route and adding a longer one, in order to better accommodate its patrons. Under the present arrangement an Atchison, Topeka & Santa Fe passenger can leave his train at La Vegas, or Albuquerque and travel over the detour (which is 250 miles) by motor coach or smaller cars and then join another train at either point. Under the new plan both of the detours will begin at Lamy. The longer route, which is 350 miles, and requires three days, follows the old detour to Santa Fe and Espanola and continues on up the Rio Grande valley to Taos. From Espanola the old detour route is followed to Albuquerque. The new two-day 200-mile trip covers the same ground as the three-day trip except that the tourist is taken westward from Espanola to the Puye cliff dwellings and returned to Espanola.

Mid-West Advisory Board Meets

Over 1,400 representatives of the railroads, shippers, and other business attended the fourth annual and fifteenth regular meeting of the Mid-West Shippers' Advisory Board at Chicago on January 12. The program usually followed at the Board's meetings was replaced by addresses by officers of several industries in the territory of the Midwest Board, including, General W. W. Atterbury, president of the Pennsylvania; B. F. Affleck, president of the Universal Portland Cement Company; V. L. Alward, president of the American Furniture Mart; Craig B. Hazlewood, vice-president of the American Bankers' Association and vice-president of the Union Trust Company; H. F. Perkins, senior vice-president of the International Harvester Company; George W. Reed, vice-president of the Peabody Coal Company; C. R. Robinson, vice-president of the Inland Steel Company; and S. H. Thompson, president of the American Farm Bureau Federation.

The reports of commodity committees indicate an anticipated decrease of 2.9 per cent in business throughout this territory, the carloading for the first three months of 1928 being estimated at 1,067,156 as compared with 1,098,414 in the same period of 1927. Those commodities whose movement is expected to increase are acids and chemicals, 10 per cent; agricultural implements, 10 per cent; brick and clay products, 11 per cent; canned goods, groceries, etc., 5 per cent; cereal beverages and mineral water, 10 per cent; cider vinegar and pickles, 15 per cent; confectionery, 10 per cent; field seeds, 15 per cent; grain products, 7 per cent; hides and leather, 25 per cent; lumber, 5.5 per cent; paper and pulp, 5 per cent; petroleum and products, 5 per cent; clam and oyster shells, 15 per cent; silica sand, 8 per cent; and waste materials, 10 per cent.

Commodities forecasting decreases under last year include, coal and coke, 10 per cent; concrete products, 25 per cent; and paper board and paper board box, 10 per cent.

The officers elected for the ensuing year were, general chairman, Robert C. Ross, general traffic manager of Joseph T. Ryerson & Son., Chicago; alternate general chairman, John L. Bowlus, manager transportation department, Milwaukee Chamber of Commerce; and general secretary, Robert Hula, traffic manager, Clayton Mark & Co., Chicago. The next meeting will be held in Milwaukee, Wis., on July 11.

Mr. Robinson spoke particularly on the effect of "hand-to-mouth" buying, describing the change in the character of orders that his company has received during the last two years. It is now not unusual for this company to handle anywhere from ten to twelve mixed carloads per day, whereas in previous years some customers would order carload lots of one or two items only and purchase less-than-carload quantities from the warehouse man. In contrast some customers now require that a half dozen products be combined in a single carload with certain other items shipped to the steel company by other steel mills; in some instances these combination carloads include baby carriages, sheets, bars and polished shafting. The entire time of one man is now employed in following through and taking

care of these combination carloads.

Mr. Perkins indicated that with the improvement in agriculture conditions including the volume and distribution of crops and prices received for them, it is reasonable to look forward to 1928 in the expectation of a fairly prosperous year for the agricultural districts and consequently for the implement industry. "If nature on the average is kind," he said, "We may look for reasonable prices for the farmers' product, better operation of the farms and as large a volume of output for the implement industry as in 1927.

Mr. Reed said that the production of coal in the Midwest territory during the last three months of 1927 was 36 per cent below that of the corresponding period of the previous year. This territory now has a smaller number of mines operating and a smaller daily production than during any other corresponding period in the last twelve years. Indications are that there will be no increase in the present rate of production during the first three months of this year, with a possibility of a further decrease during February and March.

Freight Commodity Statistics, Third Quarter 1927

Freight originated on Class I railroads for the third quarter of 1927 amounted to 350,982,165 tons, a decrease of 5.53 per cent as compared with the corresponding quarter of 1926, according to the Interstate Commerce Commission's quarterly summary. The total tons carried amounted to 628,428,464, a decrease ot 5.47 per cent, the largest decrease being that in products of agriculture. For the nine months ended September 30 the tonnage carried showed a decrease of 0.83 per cent, all classes of commodities showing a reduction except products of mines, which increased 0.37 per cent.

Maritime Rate Controversy

Another gun in the battle between the Canadian government and the Canadian National, on the one hand, and the Maritime provinces, on the other, over the freight rates granted by Parliament at its last session was fired last week at St. John, N. B., by Peter J. Veniot, Postmaster General at Ottawa and New Brunswick's representative in the federal government. Mr. Veniot made vigorous reply to recent charges of Premier J. B. M. Baxter, of New Brunswick, who recently aired these charges in addressing the Canadian Club in New York City.

Referring to the freight rates as recommended by the Duncan commission and provided for in the legislation of last session Mr. Veniot said: "It is no wonder that those who are in possession of the true facts of this case are inclined to the belief that some one is trying to make a political football out of this question of Maritime rights. Is it because the federal government in implementing the Duncan commission recommendations went far beyond what certain political opponents hoped for, that some one is now trying to turn the tables by influencing the minds of the public in an opposite direction by the production of unfounded rate?

"The rate from Halifax to Levis on freight not destined beyond that point was 50 cents per 100 lb. previous to June 30, 1927. It has been reduced to 40 cents; from Sydney to Halifax, reduced from 40 cents to 32; from Sydney to Truro, reduced from 36½ to 29 cents; from Moncton to St. John, reduced from 27½ to 22 cents; from Moncton to Bathurst, reduced from 30½ to 25 cents; from Campbellton to St. Leonard, reduced from 32 to 26 cents; from Bathurst to Caraquet, reduced from 24 to 19 cents; from Tracadie to Levis, reduced from 50 cents to 40 cents; from Tracadie to St. John, reduced from 49 cents to 39 cents. You will see by this that there is no instance where local freight has not been reduced as recommended by the Duncan report.

"Let me now deal with rates on freight originating in the Maritimes and destined to Montreal or points farther west. In dealing with those rates, two things must be borne in mind. First the railway must fix its rates based on a midway point between the point of shipment in the east and the terminus of the Atlantic region, which in this case is either Diamond Junction or Levis. In adopting this method the railway authorities have followed the requirements of the Railway Commission.

"Secondly. In all through rate fixing scales it has been sought to avoid, wherever possible, fractions in order to obtain a uniform rate or scale, and in bringing this about you could not avoid having some rates slightly above and some below the 20 per cent reduction. In figuring the 20 per cent reduction this phase as well as the first were completely ignored by the critics, and they took the reduction on the full distance without regard to the orders of the commission in all such cases. If applied in any other way than that which was adopted discrimination could be encountered as against short hauls in comparison with long hauls within the region. This can be fully proved. A person does not need to be a self-styled freight expert to find this out."

THE NEW YORK CENTRAL has received bids on 550 tons of steel for a viaduct to be erected in connection with its project at Park avenue, New York; bids have also been received on 700 tons of steel for a subway and bridge at South Bend, Ind.

* * *

Commodity Statistics, Third Quarter

Groups of Commodities	Number of tons originated: Quarter ended Sept. 30, 1927	Quarter ended Sept. 30, 1926	Per cent increase or decrease
Products of agriculture	30,349,104	30,882,555	d 1.73
Animals and products	6,354,432	6,554,621	d 3.05
Products of mines	200,886,552	218,949,356	d 8.25
Products of forests	25,003,743	25,322,559	d 1.26
Manufactures and miscellaneous	78,414,598	79,865,489	d 1.82
All L.C.L. freight	9,973,736	9,968,161	i .06
Total	350,982,165	371,542,741	d 5.53
Total tons carried			
Products of agriculture	55,139,189	59,161,210	d 6.80
Animals and products	11,369,334	11,603,455	d 2.02
Products of mines	348,116,359	372,114,489	d 6.45
Products of forests	47,134,467	50,025,068	d 5.78
Manufactures and miscellaneous	149,870,797	154,651,595	d 3.09
All L.C.L. freight	16,798,318	17,268,091	d 2.72
Total	628,428,464	664,823,908	d 5.47
Number of tons originated			
	Nine months ended Sept. 30, 1927	Nine months ended Sept. 30, 1926	Per cent increase or decrease
Products of agriculture	75,869,757	74,890,412	i 1.31
Animals and products	18,792,008	18,884,791	d .49
Products of mines	545,563,956	546,502,223	d .17
Products of forests	76,483,058	80,424,265	d 4.90
Manufactures and miscellaneous	224,281,523	225,683,901	d .62
All L.C.L. freight	28,877,174	29,495,768	d 2.10
Total	969,867,476	975,881,360	d .62
Total tons carried			
Products of agriculture	150,895,924	153,568,080	d 1.74
Animals and products	33,656,001	33,963,726	d .91
Products of mines	966,336,756	962,768,835	i .37
Products of forests	146,454,820	153,872,457	d 4.82
Manufactures and miscellaneous	430,949,582	437,123,711	d 1.41
All L.C.L. freight	48,857,935	50,736,685	d 3.70
Total	1,777,151,018	1,792,033,494	d .83

Wide World Photo

A Washout near London Caused by Recent Heavy Floods in England

Equipment and Supplies

Locomotives

THE NORFOLK & WESTERN will build 30 locomotive tenders of 18,000 gal. capacity at its Roanoke shops.

THE SIAMESE STATE RAILWAYS have ordered 8 three-cylinder Pacific type locomotives from the Baldwin Locomotive Works.

THE REDWOOD LUMBER COMPANY'S order for two electric locomotives as reported in the Annual Statistical number of the *Railway Age* of January 7 should have been credited to the Westinghouse Electric & Manufacturing Co., instead of to the General Electric Company.

Freight Cars

THE LAKE SUPERIOR & ISHPEMING is inquiring for 250 ore cars.

THE SOUTHERN PACIFIC is inquiring for 300 box car underframes and superstructure parts.

THE LEHIGH & NEW ENGLAND has given an order to the American Car & Foundry Company for making repairs to 200 hopper cars, of 50 tons' capacity.

THE H. C. FRICK COKE COMPANY has given a contract to the American Car & Foundry Company for making repairs to 137 seventy ton cars.

THE LEHIGH & NEW ENGLAND has given a contract to the American Car & Foundry Co. for repairs to 250 fifty-ton hoppers at the Berwick plant.

THE GREAT NORTHERN has ordered eight dump cars from the Koppel Industrial Car & Equipment Company. Inquiry for this equipment was reported in the *Railway Age* for January 14.

THE CHICAGO & EASTERN ILLINOIS has revised its inquiry for 500 automobile box cars. The original inquiry for this equipment was reported in the *Railway Age* of December 3.

THE NORFOLK & WESTERN will build 250 all-steel gondola cars of 90 tons capacity at its Roanoke shops, and is inquiring for bids for rebuilding 1,000 all-steel, 57½-ton hopper cars.

Passenger Cars

Pennsylvania Orders 613 Passenger Train Cars

The Pennsylvania, announcing that it was the purpose of the railroad to eliminate wooden cars from service on all scheduled passenger trains over all the system, placed one of the largest orders for passenger train cars on record when it let 613 all steel passenger train cars this week. The order was divided among various builders as follows:

Number	Type	Length	Builder
150	Coach	70 ft.	Standard Steel
88	Coach	70 ft.	Bethlehem Steel
50	Coach	70 ft.	Pressed Steel
12	Coach	70 ft.	Company Shops
85	Baggage	60 ft.	St. Louis Car
75	Baggage	60 ft.	Am. Car & Fdy.
50	Baggage	60 ft.	J. G. Brill
20	Pass. & Bagg..	70 ft.	Company Shops
45	Scenery	70 ft.	Company Shops
25	Horse-Exp. ...	74 ft.	Company Shops
7	Gas-Electric. ..	.....	J. G. Brill
6	Gas-Electric ..	.....	Pullman

THE UNION PACIFIC is inquiring for six gas-electric cars and eight trailers.

THE GREAT NORTHERN has ordered 5 combination baggage and mail 73-ft., single-power-plant gas-electric rail motor cars from the J. G. Brill Company.

Iron and Steel

THE BOSTON & MAINE has received bids on 1200 tons of steel for use at Westboro, N. H.

THE WESTERN PACIFIC has ordered 15,000 tons of rail from the Colorado Fuel & Iron Co.

THE NEW YORK CENTRAL has ordered 600 tons of steel from the Ft. Pitt Bridge Works and the Bethlehem Steel Company for work at South Bend, Ind.

THE WABASH has placed orders with the Illinois Steel Company, the Inland Steel Company and the Bethlehem Steel Company, for the necessary bolts and spikes for the 20,000 tons of rails recently purchased. The rail joints have been ordered from the Rail Joint Company.

Machinery and Tools

THE PENNSYLVANIA, through its purchasing department has requested the *Railway Age* to publish the following notice. "The purchasing department of the Pennsylvania advises dealers in small tools to beware of all persons representing the Pennsylvania without authority.

THE PULLMAN CAR & MANUFACTURING CORPORATION has ordered a Niles-Acme 32-in. shaper from the Niles-Bement-Pond Company.

THE LEHIGH COAL & NAVIGATION COMPANY has ordered a No. 2 axle lathe from the Niles-Bement-Pond Company.

Signaling

THE DELAWARE, LACKAWANNA & WESTERN has ordered from the Union Switch & Signal Company an electro-pneumatic interlocking for Denville, N. J. The machine will be model 14, and will have 47 levers. Style R color light signals will be used.

THE LONG ISLAND has contracted with the Union Switch & Signal Company for the installation of flashlight automatic signals at 17 highway crossings between Atlantic Avenue, Brooklyn, N. Y., and Jamaica.

Foreign

"Railhead" Distribution of Merchandise

The principal railroads of England, when, in 1922, they were consolidated into four large companies, found themselves with surplus facilities at numerous points; and, in particular, large or small freight houses at a good many cities. As a promising way of utilizing this excess floor space, offers were made to manufacturers and wholesale merchants to make use of the buildings as distributing centers for their products; and this policy has turned out to be a benefit to the roads, the shippers and the public.

On the London, Midland & Scottish at the end of 1922, there were 16 stations in use for this business and the innovation since then has expanded so that, today, there are more than 400 such establishments on the L. M. & S. alone. As an example of the accelerated movement of freight under this plan, the Railway Gazette (London) cites the case of Cadbury Brothers, chocolate manufacturers. This concern opened such a "railhead" station in London, (Camden Town) about six years ago, fitting up a stockroom, offices and a show room. Each afternoon, about six tons of confectionery is dispatched from Cadbury Brothers' Works at Bournville, and these are delivered at Camden at two o'clock the next morning. To facilitate quick handling, goods are packed into cages which are transferred from factory to freight cars and from cars to the stockroom by hydraulic derricks. The goods are unloaded beginning at 8 a. m. and are at once distributed to fill individual orders; being packed upon trays, which trays convey them to motor trucks. Of these motor trucks, 15 or 20 are utilized on an average day, distributing goods throughout greater London.

British Road Running "Educational Excursions"

So successful have been the excursions run by the Great Western Railway to its Swindon Works for the purpose of showing the public the conditions under which the famous "King" class locomotives were built that investigations have already been made with a view of extending these facilities to outside organizations of educational value. The first two of what are to be called "educational excursions" are to be run early in the new year, one to Bath, which will include a personally conducted tour of the world famous Roman baths dating back nearly 2,000 years, with all the latest additions science can offer for medical spa treatment, and the second to Bristol where an opportunity will be given of seeing over the great chocolate and cocoa works.

The fares in each case will be based upon the popular 3 miles a penny (two-thirds cents per mile) rate and express trains with restaurant cars will be provided in each case.

Supply Trade

The Wellman-Seaver-Morgan Company, Cleveland, Ohio, has moved its New York office from 522 Fifth avenue, to 30 Church street.

The Newark, N. J., office of the **Elwell-Parker Electric Company** is now located in the Military Park Building, Newark, in charge of **W. B. Speirs,** district manager, who succeeds **D. D. Ritson.** Mr. Speirs served in various capacities for many years with the Delaware, Lackawanna & Western.

The Timken Roller Bearing Company, Canton, Ohio, has authorized an expenditure of $4,000,000 to be devoted to increasing the production facilities of the company during 1928. The greater part of this expansion program will be applied to the plant at Canton, where both a steel mill and the bearing manufacturing plant proper will be considerably enlarged.

The **American Carbolite Company, Inc.,** has taken over the merchandising of the entire output of the **Carbic Manufacturing Company.** The former company has appointed the **Oxweld Acetylene Company** its exclusive agent for the sale of Carbic lighting, welding and cutting equipment and the **Union Carbide Sales Company** its exclusive agent for the sale of Carbic cakes.

J. S. Doyle, formerly assistant to the president of the Continental Brake Shoe & Equipment Company, is now assistant manager of the electric street railroad and motor bus division, general railroad department of the **Johns-Manville Corporation,** New York. This division has been created to serve the increasing requirements of this phase of transportation. Mr. Doyle was born on November 22, 1900 at Chicago. He was educated at Dartmouth College and Columbia University, completing the scientific course in 1922.

The **Roller-Smith Company** has made a number of changes and additions to its sale organization in New York. **H. S. King** has been added to the sales force and will operate in the Metropolitan district; **Albert Milmow,** Latonia building, Charlotte, N. C., has been appointed exclusive agent for North and South Carolina; **W. J. Schuhmann,** sales engineer in the New York office for a number of years, has been transferred to the company's works at Bethlehem, Pa.

Frank W. Gorman is now district sales representative with headquarters at El Paso, Texas, of the **Ohio Brass Company,** Mansfield, Ohio. Mr. Gorman, who was formerly with the Mine & Smelter Supply Company, El Paso, relieves **L. M. Keating** who has moved to Mansfield to assume new duties in the general sales department of the Ohio Brass Company. The Company has opened an office at Ninth and Olive streets, St. Louis, Mo. **H. W. Kilkenny,** district sales manager in the St. Louis territory, has his headquarters in the new office.

T. M. Girdler who has been elected president of the Jones & Laughlin Steel Corporation, Pittsburgh, Pa., was graduated from Lehigh University in 1901 with the degree of mechanical engineer. The following year he began work in the steel business with the Oliver Iron & Steel Company. In 1914 he went to the Jones & Laughlin organization as assistant to the general superintendent of the Aliquippa works, Woodlawn, Pa.

T. M. Girdler

He subsequently served successively as assistant general superintendent and general superintendent of the same works and general manager of all the plants and properties of the corporation. Mr. Girdler was elected vice-president in charge of operations and a director in January, 1926, and the following year he was made a member of the executive committee.

G. S. Carrick has been appointed general manager of the industrial department of the **American Arch Company, Inc.,** New York. He will have full charge of all matters relating to the company's furnace products. Mr. Carrick graduated from Purdue University in 1909. He then served with the Westinghouse Company in the power plant department, and later in its industrial sales department. In 1913 he entered the combustion engineering field, specializing in power plant work. Later he organized and became president and general manager of the Carrick Engineering Company, Chicago; all of the automatic controls and control systems sold by this company were invented by Mr. Carrick. In 1927, he sold his interests in the Carrick Engineering Company.

Leeds, Tozzer & Co., Inc., 75 West Street, New York City, was recently organized and is equipped to design and furnish special purpose machine tools and machinery and to represent manufacturers as sales agents. **Edward L. Leeds,** president of the new company was recently vice-president and director of Niles-Bement-Pond Company, vice-president of Pratt & Whitney Company and formerly assistant general manager and manager in Europe of the Brown Hoisting Machinery Company, Cleveland. **Brent A. Tozzer,** vice-president of the new company, was until recently New York manager and sales engineer of the Niles Tool Works Company and Pratt & Whitney Company, and formerly sales engineer and European representative of the Lodge & Shipley Machine Tool Company, Cincinnati. Associated with the new company are experienced engineers who have designed and built many special purpose machines and many machines for mass production.

J. B. Bouck, Jr. vice-president, eastern division of **Pratt & Lambert,** Inc., with headquarters at New York has tendered his resignation effective February 1, after a service of nearly 35 years with the company. With the retirement of Mr. Bouck, **H. S. Prescott,** sales manegar, eastern division becomes resident manager in charge of all business for the company in the eastern territory.

The consolidation of the **Inland Steel Company** and the **Youngstown Sheet & Tube Co.,** into a new company to be known as the **Youngstown Inland Steel Corporation** with assets close to $400,000,000 has been decided upon by the executive officers of both companies. The plan of merger agreed upon will be submitted to the respective boards of directors in the near future and if the proposal is approved by the directors, meetings of the stockholders will be called for the adoption of the plan.

Obituary

Edward L. Ryerson, chairman of the board of directors of Joseph T. Ryerson & Son, Inc., who died at his home in

Edward L. Ryerson

Chicago on January 19 was born in Chicago, on November 24, 1854. He was graduated from Yale University in 1876 and during the same year entered the

iron and steel business of his father, Joseph Turner Ryerson. In 1878 he was made a partner and the business became known as Joseph T. Ryerson & Son. In 1883, upon the death of his father, Mr. Ryerson succeeded as head of the business which was founded in 1842. In 1888, when the business was incorporated, he became its first president, continuing in that office for 23 years. In 1911 he retired from the presidency and became chairman of the board of directors. Mr. Ryerson was associated with a number of financial and civic organizations.

David R. Day, at one time resident manager of the Hall Signal Company at Chicago, and recently representative of the Aldobilt Company and the Gerald Company, Chicago, died on January 25 following a week's illness.

Trade Publications

BOWSER AUTOMATIC BARRELING SYSTEM.—The Bowser method for filling drums at railroad oil houses is illustrated in a four-page folder issued by S. F. Bowser & Co., Fort Wayne, Ind.

SPEED REDUCERS.—The Albaugh-Dover Manufacturing Company, 2100 Marshall boulevard, Chicago, gives in Bulletin "A" complete information on high efficiency speed reducers. These speed reducers are applicable for drives to conveyors, hoists, stokers, grinders, machine tools, and other equipment that must run at slower speeds than electric motors or similar sources of power.

JOURNAL BEARINGS.—The SKF Industries, Inc., 40 East Thirty-fourth street, New York, describes in its catalogue No. 187 the SKF journal bearing for railroad equipment. This bearing is a self-contained and self-alining unit. No internal adjustment is required to the bearing itself, and complete freedom of alinement is assured in passing over rail joints and track irregularities. Cross-sectional drawings clearly illustrate these features of the bearing. The closed-up construction of the journal box excludes considerable foreign matter such as water, grit and abrasive.

"HISTORY OF RAILROADING IN U. S. A."—A folder bearing the foregoing title and containing 22 loose leaves is being distributed by the Bridgeport Brass Company, Bridgeport, Conn. Each leaf describes a little known and interesting incident in railroad history. The incidents have been chosen because of their bearing on railroad development and each is illustrated by a drawing faithfully depicting equipment and practices existing at that time.

THE NEW YORK, CHICAGO & ST. LOUIS has divided an order for 10,500 tons of rails among the Carnegie Steel Company, the Illinois Steel Company, the Bethlehem Steel Company and the Inland Steel Company, with an option on 6000 or 7000 additional tons.

Construction

BOSTON & ALBANY.—A contract has been let to the Fairbanks, Morse Company, Chicago, for the construction of a 1000-ton coaling plant and a 750-ton sand house at Allston, Mass.

CANADIAN PACIFIC.—This company has given notice that it will apply to the next session of the Canadian Parliament for permission to construct a line from Acme, Alta., on the Langdon-Kneehill branch to a point 25 miles northwest and a line from Rosemary, Alta., on the Bassano-Leader-Swift Current branch to a point 20 miles northwest. At the same time the company will apply for permission to issue securities not exceeding $40,000 per mile in amount to finance this construction.

CENTRAL OF GEORGIA.—This road plans the construction of new station facilities at Thomaston, Ga., and the construction of warehouses at Rome, Ga.

DETROIT, TOLEDO & IRONTON.—A contract for grading and the construction of abutments for highway grade crossing elimination structures on a portion of the Malinta (Ohio)-Durban (Mich.) line of this railroad in the vicinity of Delta, Ohio, has been let to A. Guthrie & Co., St. Paul, Minn.

EDMONTON, DUNVEGAN & BRITISH COLUMBIA.—The Alberta government has applied to the Dominion of Canada for permission to construct extensions of this railroad from Spirit River, Alta., west 68 miles into British Columbia and from Wembley, Alta., northwest about 120 miles into British Columbia.

GREAT NORTHERN.—This company plans the construction of a branch from either Beaverton, Mont., or Saco, on the main line to Turner, Mont., near the Canadian border, about 80 miles. If these plans are approved by the Interstate Commerce Commission and the Board of Railroad Commissioners of Montana the line will furnish transportation to 61 townships in a fertile Spring wheat territory. The cost of construction of the line is estimated at $2,000,000.

NEW YORK CENTRAL.—This road is considering plans to enlarge track facilities and to develop yardage lying east and north of the union station at Albany, N. Y. These improvements are planned to take care particularly of passenger traffic.

NORTHSIDE BELT.—The Interests Commerce Commission on January 24 made public a r eport proposed by Examiner Thomas F. Sullivan recommending that the commission deny the application the Northside Belt for authority for the operation in i nterstate commerce of its line in Harris county, Tex., 5.1 miles. The report s ays "it is apaprent that the main purpose in view in constructing the applicant's line was to furnish a plant facility for the American Petroleum Company and the Galena Company and to enable those companies to secure preferential rates on their traffic," and that "apparently operation is to be performed solely by the American Petroleum Company under the terms of a contract dated

PENNSYLVANIA.—A contract has been awarded to the James McGraw Company of Philadelphia, Pa., for grading, masonry work and station platforms in connection with the new Market street subway at Harrisburg, Pa., which it is estimated, will cost $300,000. This company has also been let a contract for track work incident to changes required in connection with the construction of the new Market street subway at Harrisburg, which is to cost $100,000.

PITTSBURGH & WEST VIRGINIA.—The Interstate Commerce Commission on January 6 made public a report proposed by C. V. Burnside, assistant director of its Bureau of Finance, recommending denial of this company's application for a certificate authorizing the construction of an extension from Cochran's Mill to Connellsville, Pa., about 38 miles, "without prejudice to renewal in connection with proceedings properly involving the general questions of consolidation in eastern trunk line territory." After referring to the testimony relating to the use of the proposed line as part of a new system or through route from the East to the Middle West in connection with the Pittsburgh & West Virginia, Wheeling & Lake Erie and the Wabash, Mr. Burnside said: "The principal question thus involved in the proceeding is too farreaching and too important for decision upon the present record. Although the commission has requested that it be relieved of the duty of formulating a complete plan of consolidation for all the railroads of the country, it is not to be assumed that it is ready to proceed with the formation of a major system in eastern territory without due consideration of the components of other systems serving the same general territory. Much less is it able to approve at this time the investment of a large sum in new construction, principally with a view to the formation of a new trunk line to compete with existing trunk lines between the eastern seaboard and the Middle West. This question and others of like nature must be determined in appropriate proceedings under section 5 of the act and upon a record which will include the view of all interested carriers and other parties, or at least in a proceeding which will give those parties adequate opportunity for a hearing. Much of the material in this record would be of value in such an inquiry." The Pennsylvania, the New York, Chicago & St. Louis, the Baltimore & Osio and the Wheeling & Lake Erie intervened in opposition to the application.

ST. LOUIS & HANNIBAL.—This company has placed a contract with the Roberts & Schaefer Company, Chicago, for a locomotive engine coaler for installation at Hannibal, Mo.

UNION PACIFIC.—This company closes bids on February 6 for the construction

of an extension from its present line near Creighton, Wyo., to a point on its main line near Burns, Wyo., about 54 miles.

Proposed Peace River Lines

Nine private railway bills are to be submitted at the coming session of the Canadian Parliament at Ottawa, and of those nine three deal with railway construction in the Peace River region in northwestern Alberta. Authority is being sought to incorporate the Alberta Peace River & Pacific Railway, and the Peace River & Mackenzie District Railway, while permission is asked to build extensions to the Edmonton, Dunvegan & British Columbia Railway.

The Alberta, Peace River & Pacific Railway would begin at Lethbridge, Alta., and run west to MacLeod; thence it would parallel the Calgary-MacLeod branch of the Canadian Pacific Railway to Calgary and extend to Edmonton via Lacombe. From the Alberta capital the projected railway would proceed by the most feasible route along the right bank of the Simonette river to a crossing of the Smoky river, near its junction with the Wapiti river at Bezanson, and then to Grande Prairie. The line would cross the mountains at Monkman pass to Alzea lake on the Canadian National in British Columbia. The railway would fork at Grande Prairie and a branch would run in a northwesterly direction to Pouce Coupe and thence to Hudson's Hope in British Columbia. From that point the road is projected by the most feasible route through Pine Pass to Stewart, at the head of the Portland Canal.

An easterly connection would be built from Hudson's Hope to Whitelaw, then that branch will run north to Fort Vermillion, continuing on to the 60th parallel where the provincial boundary is crossed by the Hay river.

The cost of construction is estimated at $40,000 per mile in the prairie sections and $65,000 in the mountain sections.

The Peace River & Mackenzie District Railway contemplates a road from Grimshaw station, on the Edmonton, Dunvegan and British Columbia line, north to Keg river prairie; following Boyer river, the line would run in a northeasterly direction to the outlet at Fort Vermilion, then the left bank of the Peace river would be followed to Little Rapids, whence the railway would be built to the head of Salt river to a terminal opposite Pointe de Gravois on the Slave river, northwest of Forth Smith in the Northwest Territories.

The length of the line would be 400 miles. A branch line of 120 miles is proposed, to begin at a point near where Bushe river enters the Boyer river, due west of Fort Vermilion, to the west end of Hay lake, at the eastern boundary line of British Columbia.

The bill with respect to the Edmonton, Dunvegan & British Columbia seeks authority for extensions from M.P. 357 at Spirit river, by the most feasible route, and generally in a westerly direction 68 miles into British Columbia; and also from M.P. 65, near Wembley, north 120 miles into British Columba. The cost per mile is estimated at $40,000.

Financial

BAY TERMINAL. *Car Trust Certificates.*—This company has applied to the Interstate Commerce Commission for authority to issue $325,000 of car trust certificates to be used in purchasing 200 new tank cars.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—*Bonds Offered.*—J. P. Morgan & Co., the First National Bank of New York, the National City Company and the Guaranty Company of New York announced on January 18 an offering of $15,000,000 refunding and improvement mortgage 4½ per cent bonds, series E at 100 and accrued interest. The bonds are dated July 1, 1927, bear interest from January 1, 1928 and mature July 1, 1977.

Bonds Authorized.—The Interstate Commerce Commission has authorized this company to issue $15,000,000 of refunding and improvement mortgage bonds, series E, to be sold at not less than 97½ to J. P. Morgan & Co. On this basis, the annual cost to the applicant will be approximately 4.63 per cent. Of these bonds $12,172,000 are to be issued to provide for additions and betterments, and the remainder for acquiring and refunding other securities.

DENVER & RIO GRANDE.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon a branch line from Gunnison, Colo., to Floresta, 10.71 miles, which was constructed to serve coal mines at which operations have been discontinued.

ST. LOUIS-SAN FRANCISCO.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $4,000,000 of prior lien mortgage 5 per cent bonds and to pledge $7,911,000 of similar bonds and $2,708,700 of 5½ per cent bonds as collateral for short-term notes.

GREAT NORTHERN PACIFIC.—*Hearing on Unification Proposal to be Resumed.*—The hearing on this company's application for authority to acquire control of the Great Northern, Northern Pacific and Spokane, Portland & Seattle was adjourned to January 30 at St. Paul, Minn., at the conclusion of the Washington hearing on January 18.

GREENBRIER, CHEAT & ELK.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon eight miles of its line, from Spruce, W. Va., to Cass, by conveying it to the West Virginia Pulp & Paper Company to be used for logging operations.

LAKELAND RAILWAY.—*Operation of Line.*—This company, organized in the interest of the city of Lakeland, Ga., has been authorized by the Interstate Commerce Commission to operate a line from Lakeland, Ga., to Naylor, 10 miles, formerly owned by the Milltown Air Line Railway, which was acquired by the city after the company had been authorized to abandon operations.

MICHIGAN CENTRAL.—*Lease of Subsidiary Renewed.*—The Interstate Commerce Commission has authorized the Michigan Central to renew its lease of the Detroit Manufacturers Railroad and to extend the term to June 11, 1931.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—*1927 Earnings.*—The preliminary report of earnings for this company, including the Wisconsin Central, for the year ended December 31, 1927, shows net income after interest and other charges, of $1,541,903, equivalent after allowance for 7 per cent preferred dividend, to $2.61 a share on the common stock. Net income in 1926 was $15,860, equivalent to 12 cents a share on the preferred stock.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—*Bond Application.*—This company has applied to the Interstate Commerce Commission for authority to issue and sell $17,100,000 of first mortgage gold bonds for the purpose of retiring $16,100,000 of first consolidated mortgage 6 per cent bonds which mature on April 1. Subject to the approval of the commission it is expected to sell so much of the issue as may be necessary for this purpose to J. P. Morgan & Co., and the commission is asked to authorize a price of 94.84.

NEW YORK, NEW HAVEN & HARTFORD.—*Collateral Securities for Note.*—The Interstate Commerce Commission has modified a previous order permitting the pledge of $20,000,000 first and refunding mortgage bonds, series A, for a new promissory note of $17,000,000, paying 5 per cent interest, replacing a note of the same amount which paid 6 per cent. The former note was dated November 1, 1920, payable to the Director General of Railroads, with interest 6 per cent and was recently sold by the Secretary of the Treasury to private parties. The new holders agreed to a reduction of interest on condition that the note should not be called until later.

OUTER HARBOR TERMINAL RAILWAY.—*Acquisition.*—The Interstate Commerce Commission has issued a certificate authorizing this company to acquire and operate a line of railroad at Los Angeles Harbor, Cal., hitherto owned and operated by the Outer Harbor Dock & Wharf Company. Authority has also been granted covering the issue of $130,000 capital stock to be delivered to the Dock Company.

PITTSBURGH, CINCINNATI, CHICAGO & ST. LOUIS.—*Bonds Authorized.*—The Interstate Commerce Commission has granted authority to this company to issue $8,530,000 of general mortgage 4½ per cent bonds, series C, to be delivered to the Pennsylvania at par, in partial reimbursement for indebtedness to that company.

RUSSIAN SOVIET GOVERNMENT.—*Arranges to Sell Bonds in American Market.*—The Soviet State Bank has announced that arrangements have been effected with the Chase National Bank of New York,

the Amalgamated Bank of Chicago and the Bank of Italy in San Francisco to pay interest and principal in dollars on Russian railway bonds sold to American investors. The bond issue is reported to amount to a total of $30,000,000, and it is said that about $100,000 have already been sold in America. For the present the bonds will be delivered to American purchasers by mail from Moscow.

SOUTHERN.—*Equipment Trust.* — This company has applied to the Interstate Commerce Commission for authority to assume obligation and liability in respect of $9,840,000 of 4 per cent equipment trust certificates and the Mobile & Ohio has made a similar application for $1,620,000 of 4 per cent certificates. Advertisements have been published for competitive bidding.

SOUTHERN.—*Statement by President Fairfax Harrison Relative to Mobile & Ohio Rumors.*—President Fairfax Harrison, of the Southern Railway Company, has authorized the following statement:

In view of the publicity of the last few days consisting of various rumors of alleged impending development all of which seems to have been intended to support a speculative movement in the market price of Southern Railway Company's Mobile & Ohio stock trust certificates, the Southern Railway desires to state some of the facts of the situation for the benefit of all concerned. The Mobile & Ohio stock was acquired by the Southern in 1901 as the result of a public offering to exchange its four p.c. stock trust certificates for the stock. There was a ready response from the Mobile & Ohio stockholders to this offer which was so obviously to their advantage for after 50 years of operation the Mobile & Ohio had then distributed to its stockholders no more than a single dividend of one per cent in 1898. The offer of the Southern was, therefore, virtually to give the Mobile & Ohio stockholders something for nothing. The Southern did this not as an act of philanthropy but as a long pull investment in the future of the Mobile & Ohio. The Souhern held this investment for more than 20 years before it realized a cent of profit, meanwhile the earnings of the Mobile & Ohio might have justified higher dividends than were actually paid, but the Southern refrained from draining the company treasury. On the contrary it has since 1901 reinvested in betterments on the Mobile & Ohio more than $11,000,000 of income, which might have been paid to the Southern in dividends thereby making the Mobile & Ohio the efficient transportation machine it now is, capable of performing the public service expected of it. The Mobile & Ohio is not an integral part of the Southern Railway System and the Southern has no plan involving the consolidation of the two companies. It does expect to continue to perform the contract obligation by the stock trust certificates as it has done during all the lean years through which it has carried the bag, and it also expects to resist to the uttermost any selfish attempt to repudiate the contract on which its rights have rested.

SOUTHERN RAILWAY.—*Preferred Stock Dividends Case Closed.*—The Supreme Court of Appeals of Virginia has handed down a decision upholding the findings of Judge Beverly T. Crump in the Law and Equity Court of Richmond, Va., that the preferred stockholders are not entitled to any excess earnings above the 5 per cent rate prescribed under the charter. Judge Crump refused to grant an injunction asked by Arthur Lyman, one of the preferred stockholders, restraining the company from paying more than the 5 per cent dividend on common stock until claims of preferred stock for any excess earnings above that amount had been discharged.

ST. LOUIS, SAN FRANCISCO & TEXAS.—*Acquisition.*—The Interstate Commerce Commission has issued a certificate authorizing this company to take over the Paris & Great Northern. Both the St. Louis, San Francisco & Texas and the Paris & Great Northern are controlled through stock ownership by the St. Louis-San Francisco & Texas to issue $171,000 also granted authority to the St. Louis, of capital stock in exchange for $500,000 of Paris & Great Northern stock, which is to be surrendered and cancelled, and to assume obligation and liability in respect to $339,000 first mortgage 5 per cent bonds and $21,598 of demand promissory notes of the subsidiary company.

TEMISKAMING & NORTHERN ONTARIO RAILWAY COMMISSION.—*New Financing.*—Dillon, Read & Co., and the Dominion Securities Corporation were the highest bidders for an issue of $6,000,000, 4 per cent debentures, due serially from 1939 to 1968 and unconditionally guaranteed by the Province of Ontario. Their bid was 96.6329, giving an average annual cost to the commission of 4.21 per cent.

TENNESSEE & NORTH CAROLINA.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire and operate a line from Andrews to Hayesville, N. C., 24.84 miles, formerly operated by the Carolina & Georgia, proposing to finance it by the issue of $117,000 of capital stock.

WICHITA FALLS & SOUTHERN.—*Securities.*—This company has applied to the Interstate Commerce Commission for authority to issue $3,500,000 of first and refunding mortgage 5½ per cent bonds, and $1,500,000 of common stock for the purpose of acquiring stock of the Wichita Falls & Southern Railway and the Wichita Falls, Ranger & Fort Worth.

YORK, HANOVER & FREDERICK.—*Stock Issue Authorized.*—The Interstate Commerce Commission has granted this company authority to issue $462,000 of capital stock, par value $50, to be delivered to the Pennsylvania in partial payment of obligations. This company is operated by the Northern Central as agent on a net earning basis.

Dividends Declared

International Railways of Central America.—Preferred, 1¼ per cent, quarterly, payable February 15 to holders of record January 31.

Mine Hill & Schuylkill Haven.—$1.25, payable February 1 to holders of record January 13.

Average Price of Stocks and of Bonds

	Jan. 24	Last week	Last year
Average price of 20 representative railway stocks..	120.18	119.09	101.75
Average price of 20 representative railway bonds..	97.55	97.42	93.37

Valuation Reports

The Interstate Commerce Commission has issued final valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes as follows:

Montana, Wyoming & Southern	$527,500	1917
Louisiana & Arkansas	7,748,150	1917
Genesee & Wyoming	323,500	1917
Tennessee Central	9,195,000	1918
Kansas City, Mexico & Orient..	6,146,500	1919
Mississippi Central	4,834,000	1918
Alabama, Tennessee & Northern	2,204,700	1918

Officers

Executive

Following the purchase of the Thorton & Alexandria by a group of business men of Little Rock, Ark., **L. E. Moore,** engaged in the real estate business at that point, has been elected president succeeding **W. C. Ribenack. Hugh Carter,** of Little Rock, has been elected vice-president and **W. H. Holmes** has been elected secretary and treasurer.

J. B. Yohe, vice-president of the Pittsburgh & Lake Erie, the Pittsburgh, Chartiers & Youghiogheny and the Monongahela, with headquarters at Pittsburgh, Pa., has also been elected president of the Pittsburgh, McKeesport & Youghiogheny.

Financial, Legal and Accounting

P. B. Stofer, assistant to comptroller of the Southern Pacific, with headquarters at New York, has been appointed assistant comptroller, with the same headquarters. **G. T. Holbrook** has also been appointed an assistant comptroller at New York.

J. M. Souby, assistant valuation and commerce counsel of the Union Pacific with headquarters at Omaha, Neb., has been promoted to valuation and commerce counsel, with headquarters at the same point, succeeding **Henry A. Scandrett** who became president of the Chicago, Milwaukee, St. Paul & Pacific on January 16.

James M. Seibert, who retired on January 1 as real estate and tax commissioner of the Missouri Pacific, with headquarters at St. Louis, Mo., after completing 15 years of service in that capacity, was born on February 3, 1847, in Perry county, Mo. He attended McKendree College, Lebanon, Ill., and in 1867 he moved to Cape Girardeau, Mo. At the age of 37 years Mr. Seibert was elected state treasurer of Missouri and in 1888 he was elected state auditor. After serving in this position for 12 years he acted for five years as excise commissioner of the City of St. Louis, entering railway service with the Missouri Pacific as a statistician in the law department in 1906. Mr. Seibert was appointed general agent in the passenger department in 1910 and two years later following the consolidation of the real estate and tax departments he was appointed to head the new department as real estate and tax commissioner.

T. S. Reed, who has been promoted to real estate and tax commissioner of the Missouri Pacific, with headquarters at St. Louis, Mo., was born at Atlanta,

Ill. He first entered railway service in 1911 in the real estate and tax department of the St. Louis-San Francisco. Prior to that time Mr. Reed had served two terms as clerk of the Andrew County, Mo., court from 1894 to 1902,

T. S. Reed

had been president of the Round Prairie Bank at Fillmore, Mo., revenue clerk in the office of the auditor of the state of Missouri, clerk of the state board of equalization, cashier of the First National Bank of Olathe, Kan., and engaged in manufacturing at Kansas City, Mo. In December, 1911, he entered the real estate and tax department of the Missouri Pacific, where he remained until 1919 when he resigned to become cashier of a bank at San Bernardino, Cal. In the same year Mr. Reed returned to the real estate and tax department of the Missouri Pacific and on January 1, 1922, he was promoted to assistant real estate and tax commissioner, with headquarters at St. Louis, a position he held until his further promotion to real estate and tax commissioner on January 1.

A. L. Hawley, general auditor of the El Paso & Southwestern until that railroad's acquisition by the Southern Pacific in 1924 and recently assistant general auditor of the latter company, with headquarters at San Francisco, Cal., has retired from active duty under the pension rules of the railroad after more than 41 years of railroad service. Mr. Hawley was born on October 15, 1859, at Taylor, N. Y., and graduated from Cornell University in 1886. In that same year he entered railway service as an assistant engineer on construction and maintenance on the Ft. Worth & Denver City, the Denver, Texas & Ft. Worth and the Denver, Texas & Gulf (the latter two railroads now parts of the Colorado & Southern). From 1890 to 1892 Mr. Hawley served as assistant engineer and as division engineer on the Union Pacific and during several months of 1892 he was engaged as an assistant engineer on location surveys in the Rocky Mountains and Colorado, following which he was employed in the drafting room of the United States surveyor general for Colorado. In May, 1894 he became a clerk in the auditing department of the Union Pacific, Denver & Gulf, the Denver, Leadville & Gunnison and their successor, the Colorado & Southern. Eight years later Mr. Hawley was appointed auditor of the El Paso & Southwestern and in 1905 he was also appointed auditor of a number of subsidiaries of that railroad. On November 6, 1907, he was promoted to general auditor of that railroad system, a position he held until November, 1924, when the E. P. & S. W. became a part of the Southern Pacific and he was appointed assistant general auditor of the Southern Pacific. During government control of the railroads Mr. Hawley served as federal auditor of the E. P. & S. W.

Ralph H. Carleton, who has been promoted to assistant general auditor of the Chicago, Rock Island & Pacific, with headquarters at Chicago, was born on June 28, 1880, at Haverhill, Mass. He graduated from Dartmouth College in 1902 and from the Amos Tuck School of Administration and Finance in 1903, entering railway service on May 1 of that year as a clerk in the office of the comptroller of the Rock Island at Chicago. On July 1, 1906, Mr. Carleton was advanced to chief clerk to the comptroller, where he remained until August 1, 1911, when he was promoted to assistant auditor of disbursements, with

Ralph H. Carleton

headquarters at Chicago. Mr. Carleton was promoted to auditor of disbursements in February, 1921, a position he held until his further promotion to assistant general auditor.

Operating

R. F. Angus has been appointed assistant superintendent of the Montreal Terminals division of the Canadian Pacific, with headquarters at Montreal, Que., succeeding **F. Bisnett,** deceased.

W. Wilson has been appointed chief dispatcher of the North Florida division of the Seaboard Air Line, with headquarters at Tampa, Fla., succeeding **R. H. Rice,** transferred.

P. E. Pfeifer, superintendent of the Chicago division of the Michigan Central, with headquarters at Chicago, has been appointed assistant to the general manager of the Boston & Maine, with headquarters at Boston, Mass.

B. C. Murphy, trainmaster on the Paragould district of the Memphis division of the Missouri Pacific, with headquarters at Wynne, Ark., has been appointed acting trainmaster of the same district, between Helena Crossing, Ark., and Lexa Yard, the Latour, Clarendon and Brinkley districts and Helena terminal, with headquarters at Wynne, succeeding **T. R. Nash** who has been granted a leave of absence because of ill health.

Owen O'Connor, who has been appointed superintendent of the Harlem and Putnam divisions of the New York Central, with headquarters at White Plains, N. Y., was born on May 19, 1872, at Boston Corner, N. Y. He entered railway service in July, 1888, with the Hartford & Connecticut Western (Poughkeepsie Bridge Route), now part of the New York, New Haven & Hartford. In 1893 he became operator in the dispatcher's office of the New York Central at White Plains, N. Y., and in 1895 was advanced to train dispatcher at that place. In 1901 Mr. O'Connor was appointed chief train dispatcher there and in 1911 became trainmaster at Chatham, N. Y. He was transferred in the same capacity to the Harlem and Putnam divisions, with headquarters at White Plains in 1917, which position he was holding at the time of his recent appointment as superintendent.

J. C. Wroton, transportation assistant to vice-president of the Seaboard Air Line at Savannah, Ga., has been appointed general superintendent of transportation with the same headquarters. **H. B. Grimshaw** has been appointed superintendent of the Alabama division, with headquarters at Savannah, succeeding **S. M. Dutton,** who has been appointed terminal trainmaster in charge of the Savannah, Ga., terminals, succeeding **Paul Hollis,** transferred. **O. R. Teague** has been appointed superintendent of the East Carolina division, with headquarters at Charleston, S. C., succeeding **T. A. Norris,** who has been appointed trainmaster of the North Carolina division, with headquarters at Hamlet, N. C. Mr. Norris succeeds **W. R. Olive,** who has been appointed assistant trainmaster of the North Carolina division with headquarters at Hamlet. **T. A. Connor** has been appointed assistant trainmaster of the Alabama division, with headquarters at Bainbridge, Ga.

James C. Wroton, who has been appointed general superintendent of transportation of the Seaboard Air Line, with headquarters at Savannah, Ga., was born on December 25, 1884, at Denmark, S. C. He entered railway service in November, 1902, with the Seaboard Air Line as a telegraph operator, and from that time until December, 1904, served as operator and agent. From December, 1904, until July, 1906, Mr. Wroton served on the Atlantic & Birmingham (now part of the Atlanta, Birmingham & Coast) as train dispatcher and agent,

and then served as operator and train dispatcher on the Atlantic Coast Line at Waycross, Ga., until August, 1907. From the latter time until April, 1908, he was train dispatcher on the Southern at Knoxville, Tenn., and then until October, 1909, served in a similar capacity on the Seaboard Air Line at Hamlet, N. C. He held the same position on the Missouri Pacific at Poplar Bluff, Mo., from October 1909, until October, 1910, and on the Southern Pacific at Tucson, Ariz., from October, 1910, until December, 1911. Mr. Wroton then became chief dispatcher of the Seaboard Air Line at Hamlet, N. C., which position he held until January, 1915, when he was appointed assistant to superintendent of transportation at Norfolk, Va., remaining in that position until August, 1918. He was then advanced to assistant superintendent of transportation at that point. Since July, 1922, Mr. Wroton has served as transportation assistant to the vice president at Norfolk and at Savannah, Ga.

Felix R. Gerard, who has been appointed superintendent of the Long Island, with headquarters at Jamaica, N. Y., was born on August 30, 1887, at Blairsville, Pa. He was graduated from Blairsville High School in 1903 and completed correspondence school courses in 1905. He entered railway service on May 9, 1903, with the Pennsylvania and served in the engineering department until 1907, then serving in the transportation and operating departments until June 1, 1920, when he was appointed

Felix R. Gerard

assistant freight trainmaster of the Pittsburgh Terminal division. On January 30, 1922, Mr. Gerard was appointed freight and passenger assistant trainmaster of the Conemaugh division, and on March 16, 1926, was appointed passenger trainmaster of the Philadelphia division. On December 1 of the same year he was transferred in the same capacity to the New York division, which position he was holding at the time of his recent appointment as superintendent of the Long Island.

Wilson A. Jackson, assistant superintendent of telegraph of the Michigan Central, with headquarters at Detroit, Mich., has been promoted to joint superintendent of telegraph of the Michigan Central, the Western Union Telegraph Company and the Great North Western Telegraph Company, with headquarters at the same point, succeeding **James J. Ross,** deceased. Mr. Jackson's entire railway service of 36 years has been with the Michigan Central. He was born on September 15, 1876, at Detroit, and became a messenger on the Michigan Central at that point on June 19, 1891. Two years later Mr. Jackson was advanced to telegraph operator, remaining in that position until February 28, 1907, when he was promoted to train dispatcher. This advancement was followed by his appointment as chief operator on August 11, 1911, and on May 19, 1912, he was promoted to wire chief and manager of the Detroit telegraph office. On July 20, 1917, Mr. Jackson was promoted to telegraph and telephone engineer, becoming assistant superintendent of telegraph with headquarters at Detroit, on September 1, 1920. He occupied the latter position until his promotion to joint superintendent of telegraph on January 1.

A. H. Webb, former superintendent of the Wichita division of the Missouri Pacific and recently special assistant to the vice-president and general manager, has retired from active service under the pension rules of the company at the age of 73 years. Mr. Webb was born on January 3, 1855, and entered railway service when 19 years of age as a brakeman on the Missouri Pacific. He advanced through a number of minor positions in train service until 1886 when he was appointed assistant superintendent, with headquarters at Wichita, Kan. Eight years later he was promoted to superintendent of the Wichita division, with headquarters at the same point, becoming general superintendent of the Western district, with headquarters at Kansas City, Mo., in 1917. On January 1, 1921, Mr. Webb returned to the Wichita division as superintendent, where he remained until his appointment as special assistant to the vice-president and general manager on November 1, 1926. He continued in the latter position until his retirement on January 1.

Traffic

E. F. Bertling, has been appointed general agent of the Missouri Pacific, with headquarters at Salt Lake City, Utah.

C. F. Doran, ticket agent of the New York, New Haven & Hartford in the Grand Central Terminal, New York, has been appointed assistant general passenger agent, with headquarters at New York.

James C. Gross, who has been appointed assistant general traffic manager of the Pittsburgh & West Virginia and the West Side Belt, with headquarters at Pittsburgh, Pa., was born on March 2, 1884, in Pittsburgh, Pa. He entered railway service in 1901 with the Pennsylvania, serving for eight years in the local office. He served for the same length of time in the general offices of the Bessemer & Lake Erie. Mr. Gross then became assistant traffic manager of the Crucible Steel Company of America, remaining in this position for five years. For the past six years he has been assistant general freight agent of the Buffalo, Rochester & Pittsburgh, at Pittsburgh, Pa., which position he was holding at the time of his recent appointment. Through a typographical error, Mr. Gross' name was incorrectly spelled in the *Railway Age* of January 14, at which time his appointment was announced.

C. W. Evers, traveling freight agent of the Union Pacific at Sioux City, Iowa, has been promoted to general agent of the freight department, with headquarters at the same point, and the position of traveling freight agent at that point has been abolished.

Charles S. Fay, who has been promoted to traffic manager of the lines of the Southern Pacific in Texas and Louisiana, with headquarters at Houston, Tex., was born on October 23, 1867, at Minden, La. He attended Louisiana State University and entered railway service in 1889 as a clerk in the traffic department of the Atlantic system of the Southern Pacific. Since that date Mr. Fay has been continuously connected with the Southern Pacific or its subsidiaries for 38 years. He was consecutively chief rate clerk and chief clerk in the traffic department at New Orleans, La., and in 1899 he was advanced to as-

Charles S. Fay

sistant general freight agent of the Louisiana Western and Morgan's Louisiana & Texas R. R. & Steamship Company (both now parts of the Southern Pacific), with headquarters at the same point. In 1904 Mr. Fay was promoted to general freight agent of the same two railroads, with headquarters at New Orleans, where he remained until January 11, 1917, when he was appointed traffic manager of the Louisiana lines of the Southern Pacific. During federal control of the railroads he served as general freight agent of the Southern Pacific and the Gulf Coast Lines and as chairman of the New Orleans Western District Freight Traffic committee, and when

the roads were returned to private control he was again appointed traffic manager of the Louisiana lines of the Southern Pacific, with headquarters at New Orleans, a position he held until his promotion to traffic manager of the Texas and Louisiana lines of the Southern Pacific, with headquarters at Houston.

John T. Monroe, who has been promoted to assistant traffic manager of the Texas and Louisiana lines of the Southern Pacific, with headquarters at Houston, Tex., was born on September 24, 1880, at Iola, Tex. He attended high

John T. Monroe

school and business college and entered railway service on July 1, 1894, as an office boy on the Southern Pacific at Houston. During the next 20 years he served that railroad at Houston as office boy, as clerk in the ticket stock room, as file clerk, as rate clerk and as chief clerk, becoming assistant general passenger agent in January, 1916. In April, 1917, Mr. Monroe was promoted to general passenger agent of the Texas lines of the Southern Pacific, with headquarters at New Orleans, La., a position he held continuously until his advancement to assistant traffic manager of the Texas and Louisiana lines, with jurisdiction over matters relating to passenger traffic, on January 1.

James L. Burnham, who has been promoted to western traffic manager of the Northern Pacific, with headquarters at Seattle, Wash., was born in England in 1882. He entered railway service in 1902 in the traffic department of the Lake Shore & Michigan Southern (now a part of the New York Central) at St. Paul, Minn. Later Mr. Burnham served with the Minneapolis & St. Louis, the Chicago, St. Paul, Minneapolis & Omaha and the New York Central at St. Paul and in 1907 he entered the service of the Northern Pacific as a file clerk. The following year he was promoted to traveling freight agent at Jamestown, N. D., becoming division freight agent at St. Paul in 1912. In 1915 Mr. Burnham was promoted to assistant general freight agent, with headquarters at St. Paul, where he remained until 1921 when he was transferred to the Pacific coast, with headquarters at Seattle. On August 1, 1926, he became assistant general freight and passenger agent, with headquarters at Tacoma, Wash., where he remained until his promotion to western traffic manager on January 1.

The New York, Chicago & St. Louis has changed the titles of **R. A. Webster,** Davenport, Iowa; **James Turnbull,** Los Angeles, Cal.; **F. H. Stocker,** San Francisco, Cal.; and **E. F. Schier,** Seattle, Wash., district traffic agents for the Nickel Plate district, to general agents of the traffic department of the Nickel Plate System, with headquarters as before. The titles of **V. B. Sharritts,** Indianapolis, Ind.; **J. L. Dease,** Kansas City, Mo.; **J. R. Holcomb,** Louisville, Ky.; **W. S. Nunnery,** Memphis, Tenn.; **J. C. Dougall,** Milwaukee, Wis.; **W. H. Kelly,** Minneapolis, Minn., and **H. S. Lewis,** St. Louis, Mo., district traffic agents for the Nickel Plate district, have been changed to general agents of the traffic department of the Nickel Plate district. The titles of **W. B. Robbins,** Detroit, Mich.; **W. A. McGowan,** Kansas City; **Alan Du Quesnay,** Memphis; **J. K. Leigh,** Minneapolis; **M. M. Clements,** New York; **T. J. Faulkoner,** Pittsburgh, Pa., and **R. F. Waughop,** St. Louis, district freight agents of the Lake Erie and Western district, have been changed to general agents of the freight department of the same district, with headquarters as indicated.

Edward V. Murphy, who has been promoted to general western freight agent of the New York, New Haven & Hartford, with headquarters at Chicago, was born on July 25, 1893, at Fall River, Mass. He entered railway service in July, 1913, on the New Haven and two years later he entered the freight traffic department at Worcester, Mass. In 1917 Mr. Murphy obtained a leave of absence to enter military service, and following the signing of the armistice in 1918 he returned to the traffic depart-

Edward V. Murphy

ment of the New Haven. Mr. Murphy was advanced to chief clerk to the general western freight agent, with headquarters at Pittsburgh, Pa., in March, 1922, and in August of the same year he became traveling freight agent at Pittsburgh. With the opening of the western agency of the New Haven at Chicago in 1924 he was appointed chief clerk to the western freight traffic manager, being promoted to commercial agent at that point in December, 1925, and general agent on October 1, 1926. Mr. Murphy occupied the position of general agent at Chicago until his promotion to general western freight agent on January 1.

Mechanical

Bert H. McKerral, who has been promoted to superintendent of the car department of the Chicago Great Western, with headquarters at Oelwein, Iowa, was born on May 27, 1884, at Marshalltown, Iowa. Mr. McKerral attended the high school at Marshalltown and entered railway service at the age of 14 years with the Great Western. He occupied various minor positions in the mechanical department and the train service, including car repairer, locomotive fireman and machinist, until February, 1917, when he was appointed final inspector at the American Locomotive Company, Richmond, Va. On September 1, 1919, Mr. McKerral was appointed general car foreman on the Chicago Great Western, with headquarters at Chicago, a position he held until his promotion to superintendent of the car department on January 1.

Engineering, Maintenance of Way and Signaling

George H. Dryden, principal assistant signal engineer of the Baltimore & Ohio, with headquarters at Baltimore, Md., has been appointed signal engineer, with the same headquarters, succeeding **F. P. Patenall,** deceased.

C. D. Cronk, assistant signal engineer of the New York Central, lines West of Buffalo, with headquarters at Cleveland, Ohio, has been appointed assistant signal engineer of the Cleveland Union Terminals Company in charge of signaling, with headquarters at Cleveland.

G. E. Beck, chief signal inspector of the New York Central, lines West of Buffalo, with headquarters at Cleveland, has been appointed assistant to the signal engineer of the lines West of Buffalo, with headquarters at the same point.

W. S. Johns, division engineer of the St. Louis division of the Pennsylvania, with headquarters at Terre Haute, Ind., has been appointed an engineer of maintenance of way on the staff of the chief engineer of maintenance of way of the Western region, with headquarters at Chicago. **C. E. Adams,** supervisor in the Central region at Rochester, Pa., has been promoted to division engineer of the St. Louis, division, succeeding Mr. Johns. **J. C. White,** supervisor in the Eastern region at Tyrone, Pa., has been promoted to division engineer of the Richmond division, with headquarters at Richmond, Ind.

C. A. McRee, division engineer of the Virginia division of the Seaboard Air

Line, with headquarters at Raleigh, N. C., has been transferred in the same capacity to the East Florida division, with headquarters at Indiantown, Fla., succeeding **D. T. Daily,** transferred. **R. L. Tatum,** division engineer of the North Carolina division, with headquarters at Hamlet, N. C., has been transferred in the same capacity to the Virginia division succeeding Mr. McRee. The positions of district engineer maintenance of way of the Northern district, Southern district and Western district have been abolished. **Vance Sykes,** district engineer maintenance of way, with headquarters at Hamlet, N. C., has been appointed division engineer of the North Carolina division, with the same headquarters, succeeding Mr. Tatum. **A. O. Wilson,** district engineer maintenance of way, with headquarters at Savannah, Ga., has been appointed division engineer of the Alabama division, with the same headquarters, succeeding **E. L. Cannon,** transferred, and **O. F. McNairy,** district engineer maintenance of way, with headquarters at Jacksonville, Fla., has been appointed division engineer of the South Carolina division, with the same headquarters, succeeding **E. D. Hall,** transferred.

Hugh M. Tremaine, who has been promoted to district engineer of the Northern Pacific, with headquarters at Spokane, Wash., was born at Tama, Iowa. He attended Iowa State College and entered railway service with the Northern Pacific in 1906 as a transitman. Later he was advanced to resident engineer on construction, and in 1909 he was appointed assistant engineer on construction. From 1916 to 1918 Mr. Tremaine served in valuation work as assistant engineer and he then became an assistant engineer on capital expenditures on the staff of the regional director of the Northwest region of the United States Railroad Administration. In 1920 he returned to the Northern Pacific as an assistant engineer on valuation and in the same year he again became connected with the Northwest region of the Railroad Administration as a field engineer with the bureau of liquidation of claims, with headquarters at Chicago. Mr. Tremaine was appointed assistant engineer on the Presidents' Conference Committee on the Federal Valuation of Railroads, with headquarters at Chicago, in 1921 where he remained until 1925 when he was appointed assistant engineer on construction on the Northern Pacific. He occupied the latter position until his promotion to district engineer on January 1.

G. J. Adamson, who has been promoted to assistant chief engineer of the Union Pacific and the St. Joseph & Grand Island, with headquarters at Omaha, Neb., was born on May 9, 1880, at Iowa Falls, Iowa. He graduated from a course in civil engineering at Iowa State College in 1905 and in the same year entered railway service as a draftsman on the St. Paul & Des Moines (now a part of the Chicago, Rock Island & Pacific). In February, 1906, Mr. Adamson became a clerk in the office of the chief engineer of the Union Pacific and for a few months in 1907 he was employed in the engineering department of the Kansas City Southern. He returned to the Union Pacific on March 12, 1907, as a draftsman in the office of the chief engineer where he was engaged upon various new construction projects until November 15, 1915, when he was promoted to division engineer of the Wyoming division, with headquarters at Cheyenne, Wyo. Two years later Mr. Adamson was transferred to the Western division, with headquarters at Green River, Wyo., remaining at that point until his promotion to assistant chief engineer of the Union Pacific and its subsidiary the St. Joseph & Grand Island on January 1.

Purchases and Stores

W. M. Portlock, general storekeeper of the Seaboard Air Line, with headquarters at Portsmouth, Va., has been appointed purchasing agent.

T. A. Hodges, assistant general storekeeper of the Seaboard Air Line, with headquarters at Jacksonville, Fla., has been appointed general storekeeper, with headquarters at Portsmouth, Va., and the position of assistant general storekeeper at Jacksonville, has been abolished. **A. E. Reid,** storekeeper at Savannah, Ga., has been transferred in the same capacity to Jacksonville, Fla. **L. H. Haynes,** storekeeper at Tampa, Fla., has been transferred in that capacity to Savannah, Ga. **E. H. Austin,** storekeeper at Wildwood, Fla., has been transferred as storekeeper to Tampa, and **F. B. Lewis** has been appointed storekeeper at Wildwood.

Obituary

C. E. Horning, assistant general passenger agent of the Central region of the Canadian National, with headquarters at Toronto, Ont., died at his home in that city on January 19.

B. F. Porter, at one time assistant general manager of the Northwestern Pacific, in charge of the Northern division, died at San Francisco, Cal., on January 5.

Ira A. Place, senior law vice-president of the New York Central Railroad, the Cleveland, Cincinnati, Chicago & St. Louis, the Michigan Central and the Pittsburgh & Lake Erie, with headquarters at New York, died suddenly on January 24 of thrombosis following a stroke of apoplexy earlier in the day, at his home there. Mr. Place was born on May 8, 1854, at New York, and was graduated from Cornell University in 1881. He entered railway service in October, 1883, with the New York, West Shore & Buffalo (now a part of the New York Central). From March, 1886, until October 28, 1902, Mr. Place served in the law department of the New York Central & Hudson River (now a part of the New York Central). At the latter time he became general attorney for the same road, remaining in this position until April 5, 1905, at which time he was appointed general counsel. On December 5, 1906, Mr. Place became vice-president in charge of law, the land and tax department and the claim department of the

Ira A. Place

same road. From December, 1919, until March, 1920, during federal control, he served as general solicitor, and then became vice-president of the New York Central Lines. He was appointed senior law vice-president in June, 1927, which position he was holding at the time of his death.

THE TEXAS & PACIFIC plans the construction of a freight station on Pacific avenue near Central and Hawkins streets, Dallas, Tex., to cost about $300,000.

HORNS OPERATED BY COMPRESSED AIR are being introduced on locomotives of the St. Louis-San Francisco replacing the steam whistle.

* * *

Wide World Photo

How Britain's Recent Snow Storm Hit the Railways

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Two Sections—Section Two

Railway Age

Motor Transport Section

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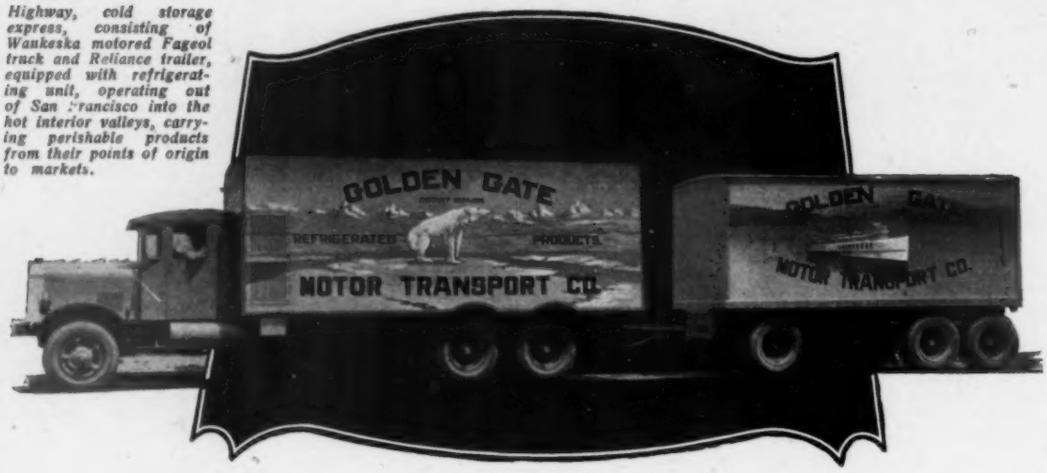

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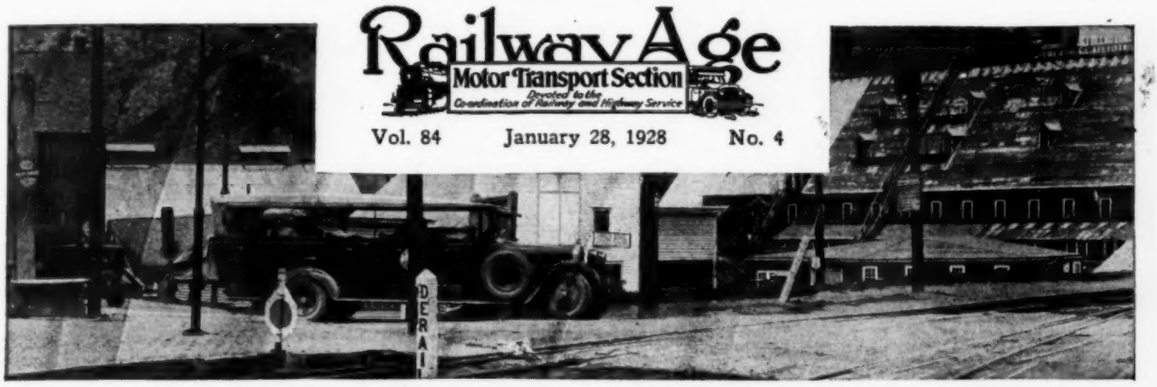
Vol. 84 January 28, 1928 No. 4



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Published every Saturday by the Simmons-Boardman Publishing Company, 34 North Crystal Street, East Stroudsburg, Pa., with executive offices at 30 Church Street, New York

Simmons-Boardman Publishing Company, 30 Church Street, New York

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Vol. 84, No. 4 January 28, 1928

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Employee Selection and Training

EMPLOYEES coming into direct contact with the public can largely make or ruin the popularity of the railway. This is just as true in the case of motor coach and motor truck companies, and perhaps even more so in view of the comparatively individual nature of the transportation service rendered by motor vehicles. The margin of profit in motor coach and truck operations is none too large at best, so that employees whose characteristics tend to keep traffic away or who do their work inefficiently are correspondingly less desirable. Almost without exception, the railways operating motor coaches are extremely careful in selecting their employees and thorough in training them to do their work properly. This is indicated in an article in this issue, entitled "Selecting and Disciplining Employees," which describes the practices of the railways in hiring and training motor coach operators and mechanics. The money value of operators who do their work efficiently and with pleasant manner and of mechanics who keep the equipment in proper working order without waste of time or effort is obvious.

Where Motor Coaches Must Be Made to Pay

THE situation of a short line railroad which embarks into motor coach operation may be somewhat different from that of a larger company in doing the same thing. The revenue or deficit of an individual schedule on a branch line of a large railroad may not be particularly important to the company's solvency. On a short line, however, which must deal in cents where the large system deals in dollars, a losing train may be highly important. A large railroad with some mileage of unremunerative branch lines may be, and often is, forced to keep these lines in operation, the authorities apparently feeling that it can afford to handle a little skimmed milk with the cream of its heavy traffic main lines. On the other hand, the short line railroad which corresponds to the branch line of large system, cannot long be forced to provide service which does not pay its way. It follow that the large road may look upon the motor vehicle as a device for reducing losses, but the short line must regard it as a revenue producer. An interesting illustration of this is afforded by the East Tennessee & Western North Carolina, a narrow-gage line, the territory of which is well described by its name. It is a rather prosperous little property, but about a year ago it found itself faced with a sudden decline of 80 per cent in passenger business over a portion of its route by reason of the completion of an improved parallel highway. The road was quick to act in the emergency and soon had motor coaches of its own in operation with the result that it has been able to maintain itself as the common carrier in its territory. Moreover, its coach lines have not only enabled the making of savings in train operation, but they are earning substantial net returns themselves. The construction of the improved highways brings problems to the railroads, but also offers them a ready means of solving those problems. What is true of the situation of the E. T. & W. N. C. is doubtless true of many other short line railroads and branch lines of larger systems. An article giving details of this road's highway operations appears on another page of this issue.

Motor Transport Division's Meeting

AS we go to press, the newly organized Motor Transport Division of the American Railway Association is holding its first convention in Chicago. With the initial problems of establishing its organization and laying out its work for the future, no fixed program of reports and papers was laid out, but an informal program was prepared by the temporary general committee at a meeting the day before the opening of the convention. An attendance of encouragingly large proportions was anticipated, representing most of the larger railroads. The first task of this convention was to lay the foundation for the work which it would carry on in the future. In subdividing its work along three lines, one section dealing with motor coach operation in co-ordination with train service, another with motor truck operation, and another with rail motor car operation, the division is mapping a course which should lead by the most direct route to its objective, the fostering of complete and economically sound co-ordination between the agencies of railway and highway transportation. With its organization completed and its work defined, the Motor Transport Division is ready to go ahead. There is no doubt that its existence and its work will be of great value to the railways. If it is to develop as it should, however, it must have the wholehearted support and co-operation of all the railways and of the officers in many of their different departments. Sound conclusions as to the proper ways in which railway and highway service should be co-ordinated are not matters which can be arrived at by operating officers alone, nor by traffic officers alone, nor by mechanical department or other department officers alone. Rather, the objective of the division will be attained only through the participation in its work of all of these departments. The Motor Transport Division should have a membership representative of nearly all, if not quite all, of the branches of transportation work. Such a membership seems to be assured and because of this a successful future for the division likewise seems assured.

The Commission Examiner's Motor Transport Report

THE long awaited report of Attorney-Examiner Flynn of the Interstate Commerce Commission on the motor transport investigation instituted by the commission in 1926, has at last been completed and is published in abstract in this issue. In it is drawn a true and exceptionally detailed picture of the condition of motor transportation a little over a year ago, which is in general an equally true picture of conditions at this time. The comprehensive nature of the information given in the body of the report is evidence of the searching way in which Commissioner Esch and Examiner Flynn carried on the investigation for the commission. If any one at this day needs to be convinced that motor transportation has made a permanent place for itself, he will find ample proof in this report. Touching as it does in every line on matters of vital interest to railway men, it is worthy of the closest study.

Particular attention, however, will be centered upon the conclusions of the examiner. He finds that motor vehicle transportation is a well-established, useful and permanent factor in the transportation system. He recognizes that the railways are engaging in motor transportation and recommends that they should be authorized to do this by law. He urges, furthermore, that revenues and expenses of the motor transport operations of railways should be reported to the commission and should be declared by law as coming within the provisions of section 15a of the Interstate Commerce Act, in determining net railway operating income. The railways may well raise a question as to whether the earnings of their motor transportation subsidiaries should be made subject to the recapture provisions unless those of independent competing companies also are to be made subject to them.

The most important conclusion of Examiner Flynn is that interstate commerce by motor vehicles operated as common carriers should be subjected to regulation, although he believes that at this time regulation should not be too rigid. In the face of all the protest against regulation of interstate motor truck operations, Examiner Flynn recommended that they be regulated to the same extent as motor coach common carriers. In this, as in nearly all of his recommendations and the form of regulation which should be imposed on interstate motor carriers and on the manner of its administration, he is in accord with the views of the National Association of Railway and Utilities Commissioners. The federal legislation proposed by the state commissioners was embodied in a bill introduced in the last Congress by Congressman Parker and in another bill which Congressman Parker has introduced in the present session of Congress.

One of Examiner Flynn's recommendations as to the regulatory law which should be passed is absent from the Parker bill, however. This recommendation is that motor carriers in operation on March 2, 1925, and continuously since then, should automatically be granted certificates of public convenience and necessity, permitting the continuance of their operations. This date was fixed since it was the time when Supreme Court decisions ruled that interstate motor carrier operation might not come under the regulatory jurisdiction of the state commissions.

Examiner Flynn's conclusions appear, on the whole, to be sound. The principal opposition to their adoption by the commission, which is expected to develop at the hearing on the proposed report next month, will probably be centered upon the recommendation that common carrier motor trucks be regulated, but this recommendation appears worthy of approval.

Endangering the Future of the Fastest Train Service

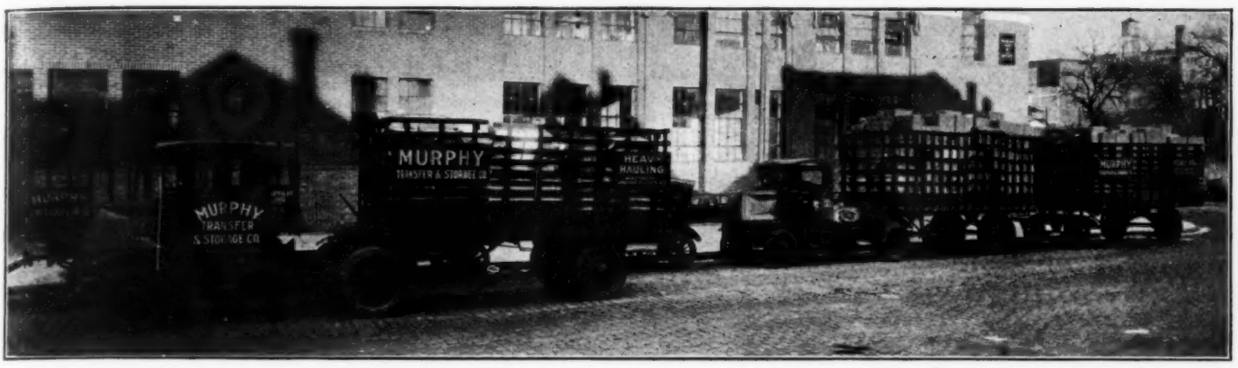
THE Public Service Transportation Company, highway subsidiary of the Public Service Railway, a large operator of trolley lines in New Jersey, is seeking authority from the New Jersey Public Utilities Commission to parallel the lines of the Pennsylvania and the Reading between Camden, N. J., and Atlantic City, with motor coach routes. Both railroads are contesting this application vigorously. A hearing which filled the courtroom was held in Camden on January 16 and a continuation is scheduled for January 30.

The two steam roads, with the Pennsylvania's electric line, give a high grade service between Philadelphia and the Jersey coast. On these lines run the fastest trains now being operated on the North American continent. The effect of this service has been to bring the Jersey coast within commuting distance of Philadelphia territory, so that many persons are enabled to live at the seashore for a portion of the year at least and travel daily to their business in the city—probably a unique instance of easy commutation up to 60 miles.

With the opening of the Delaware river bridge between Philadelphia and Camden there has been a tremendous increase in independent motor coach service between Philadelphia and the Jersey coast, directly competitive with the railroads. The motor coaches cannot approach the speed of the railroad service, but have competed by offering rates much lower than standard railroad fares for single and round trips, but considerably higher than the railroad commutation rates. The result has been that they have taken a large share of the remunerative traffic from the railroads and left them to handle the commuters. Pending the passage of a law regulating interstate commerce by motor vehicles there is nothing that the railroads can do by way of appeal to the authorities for relief in this situation. They have met the challenge by offering round trip rates but little above the one way fare and by this means hope to retrieve some of their losses. If they do not succeed and if nothing is done by the legislators to curb this competition, it would appear likely that some curtailment in the commutation service will have to be made. The coast towns, particularly Atlantic City, seem aware of the danger to their prosperity in such a move, if forced on the railroads, but are powerless as far as the interstate operations are concerned in the absence of any federal regulation.

Now, however, the Public Service Company has applied for motor coach permits over that portion of this route which lies entirely in the state of New Jersey (as all but a mile or two does). This is the first instance of proposed competition in this district where public authority has a right to rule and, for that reason, the railroads are endeavoring to present their case as completely as possible.

It would seem that the decision in this case might well establish a precedent for cases involving other competitive coach lines in suburban zones when such operations, interstate in character, are brought under regulation. Whether this is true or not, certainly the situation is one which is almost a life and death matter to the railroad service of the section. Railroad men will watch its outcome with interest.



"In Terminal Service the Truck Is Now Practically Indispensable"

Examiner's Report on Motor Transport

Regulation of interstate motor coach and truck common carrier operations recommended—Existing conditions described in detail

THE enactment of federal legislation providing for the regulation of motor vehicle common carriers of both persons and property over interstate routes is recommended by Attorney-Examiner Leo J. Flynn of the Interstate Commerce Commission, in his report on the investigation into motor coach and motor truck operations in the United States, which the commission instituted last year. The existing conditions relative to motor transportation in this country, as developed in the investigation, are described in detail and the report ends with a series of 30 conclusions, representing the views of Mr. Flynn as to what should be done to foster the development of motor coach and motor truck transportation, and to bring about its effective co-ordination with railway transportation. The outstanding of these conclusions are presented prominently on this page.

The commission's investigation comprised the taking of testimony in 13 cities located in various parts of the United States, at which Examiner Flynn and Interstate Commerce Commissioner John J. Esch presided. At these hearings more than 5,000 pages of testimony was given by over 400 witnesses, the evidence including 403 exhibits which were largely of a statistical nature. The witnesses included federal, state, county and municipal officers, railway executives, operators of motor coaches and motor trucks, farmers, livestock men, manufacturers, shippers, representatives of state regulatory bodies, motor coach and motor truck associations, chambers of commerce, traffic associations, farm bureaus, highway commissions and the automotive industry.

Examiner Flynn's report states the reasons for the investigation and presents in detail the information secured through the testimony. It traces railway revenues, both passenger and freight, during recent years and cites instances of railway operation of motor coaches and trucks and the competition with independent motor carriers which the railways are meeting. This information was released by the commission in statistical form last year and was published in the *Motor Transport Section* of January 22, 1927, and March 26, 1927. The report also discusses the legal phases of motor transportation, citing in particular the bills of lading act, the Clayton anti-trust act, and the transportation of explosives act. It describes federal legislation covering motor carriers which has been proposed in the past, and outlines the provision of adequate and effective federal legislation which should be enacted. In a series of appendices, the report describes decisions of the United States courts affecting motor transportation and items of railway statistics showing losses in revenues in recent years, and analyzes the statistical reports previously issued by the commission on its motor transport investigation.

An abstract of the report follows:

THE EXAMINER'S CONCLUSIONS:

Motor vehicle transportation is useful and permanent.

Interstate commerce by common carrier motor vehicles should be regulated.

Private and contract carrier operations should not be regulated at this time.

State regulatory bodies should have original jurisdiction, with provision for recourse to Interstate Commerce Commission.

Certificates of convenience and necessity and assurance of financial responsibility should be prerequisites to operation.

Available transportation service and the effect on it of competition should be considered in connection with applications for certificates.

Continuous operation since March 2, 1925, should be considered prima facie evidence of its convenience and necessity.

There should be a wise, farsighted and definite co-ordination of all existing transportation agencies—land, water and air.

Interstate Operations of Motor Coaches

On January 1, 1926, there were approximately 70,000 motor coaches in the United States. Of this number 30,475 were engaged in common carrier operation over intrastate routes and 1,500 over interstate routes. In addition steam and electric railways operated 5,525 motor coaches either directly or through subsidiaries. About 27,000 non-common carrier coaches were engaged in carrying children to schools. The remainder were operated by hotels, sightseeing and tour companies, and others in non-common carrier operations.

From the small touring cars or "jitneys" originally used as coaches, there has been a gradual improvement in the mechanical and body equipment, making for the greater safety, convenience and comfort of passengers, until now parlor

"Steam Railways Have Entered the Field of Motor Transport"

coaches equipped with reclining chairs, observation compartments, lavatory facilities and dining service are operated on some routes.

There can be no doubt as to the popularity of coaches for short-haul travel. There are some long-haul coach routes, such as from New York to Boston, Mass., 229 miles; Portland, Ore., to San Francisco, Cal., 772 miles; El Paso, Tex., to Los Angeles, Cal., 812 miles; Denver, Colo., to Los Angeles, 1404 miles; Chicago to St. Louis, Mo., 279 miles; Detroit, Mich., to Chicago, 272 miles; and Philadelphia, Pa., to Buffalo, N. Y., 425 miles. While there is an appreciable amount of long-distance travel by coach, and it will grow with the improvement of highways and the consolidation and development of stronger coach lines, nevertheless at present travel by motor coach is predominantly local and short haul.

The average length of 490 coach routes in New England is about 16 miles. On one of the largest coach lines in California, which carried 2,344,254 passengers in 1925, 84.5 per cent of the passengers traveled 100 miles or less. The greatest travel was from 11 to 20 miles, and 63.6 per cent of the passengers traveled 40 miles or less. Coach routes from Louisiana to points in Arkansas and Texas range from 40 to 130 miles; in North Carolina, the average coach route is 47 miles.

License Fees, Taxes and Capacities

Motor coach license fees and taxes vary greatly in the different states. In the states referred to in the preceding paragraph the average annual cost, computed on the basis of a 20-passenger coach traveling 50,000 miles per year with gross annual receipts of $12,000, was $571, or 4.75 per cent of the assumed gross receipts. Personal property taxes, in addition to these fees, are levied upon the coaches in six of the seven states for which data were available.

Of the total common carrier suburban and interurban coaches in operation in these states, 35.4 per cent had capacities of less than 8 passengers; 25.3 per cent, between 8 and 14 passengers; 34.2 per cent, between 15 and 24 passengers; and 5.1 per cent, capacities of 25 or more passengers. One of the largest operators in the country, after about six years' experience, has decided upon a 26-passenger coach as the standard for normal routes.

Motor Coach Fares

No uniform basis is used in making rates for coach travel. The standard rate for passenger travel on steam railroads throughout the country is 3.6 cents per mile. Coach fares vary in different sections of the country and are influenced by operating conditions and competition of other carriers.

In California coach fares are generally lower than corresponding rail rates. In Oregon the fares are practically the same or slightly higher than rail rates. In Michigan coach fares range from 2 to 5 cents a mile, but are usually on the same basis as rail fares where there is competition; in West Virginia, 4 to 10 cents per mile; and in Texas, from 10 to 50 cents lower than railroad fares where they are competitive. In Kentucky, coach fares average about 4 cents a mile; in Colorado, 4.21 cents; and in Louisiana and North Dakota, coach fares approximate the railroad fares. The Corporation Commission of Oklahoma has not approved coach fares lower than rail fares in that state. In Washington, coach fares are usually 3.6 cents per mile, and in mountain districts, 5 to 7 cents; in Illinois, the average is 4.25 cents per mile.

From Chicago to St. Louis, the coach fare is $7 one way and $13 round trip; the railroad fare between those points is $10.41 one way. From Seattle, Wash., to Portland, Ore., the coach fare is $5.50, railroad fare, $6.58; Denver to Los Angeles, coach fare, $25, railroad fare, $49.29; Los Angeles to Kansas City, Mo., coach fare, $37.50, railroad fare, $63.30.

Coach fares generally throughout the country approximate or are higher than railroad fares for short hauls, but are considerably lower for long hauls. Convenience and service are the determining factors in short-haul coach travel, while the lower fare is the strong appeal in the long-distance travel.

"Wild Cat" Operations

The growing popularity of travel by motor coach is largely due to the frequency of arrivals and departures, accompanied by the facility of picking up and discharging passengers at almost any point on the highway. Coaches usually make stops at hotels and other convenient points in the residential and business districts of a city. The quality of the service depends upon safety, convenience, reliability, comfort, speed and permanency.

Coach service on regularly certificated routes is generally satisfactory throughout the country. Any serious complaint against coach operations appears to be directed against those conducted by non-certificated, unregulated interstate operators commencing operations after the state regulatory bodies were deprived by decisions of the Supreme Court of such control as they had exercised over interstate motor carriers. These non-certificated coach operators, frequently referred to as "wildcatters", have worked considerable injury to regular and responsible coach lines, not only by cutting rates below what is claimed to be an economic basis, but also because the financial irresponsibilities and reprehensible practices of some tend to discredit reputable and responsible coach operations with the public.

The equipment of "wildcat" operators is sometimes represented by a single second-hand touring car purchased with a small down payment. Some sell round-trip tickets and fail to make the return trip. Misleading advertisements are placed in newspapers. Sometimes their cars break down en route and passengers are forced to seek other transportation without reimbursement. Accidents have occurred, with the operator having no liability insurance and being financially irresponsible. Passengers' property has been lost with no means of recovery

Railways Are Operating Motor Trucks in Line Service

for the loss. On some occasions where a breakdown has occurred, passengers have been required to furnish the operator with sufficient funds for the repair of the car in order that the journey might be continued.

In other instances cars have broken down and the operator, with little equity in the car, has abandoned it and left the passengers stranded.

In the present state of the law, there is no regulatory tribunal to which interstate passengers traveling in a motor vehicle can appeal for protection or reimbursement in case of accident or damage. Recourse to the courts, on account of the small amount usually involved and the time and expense necessary to prosecute an action, is ordinarily out of the question, even if such operators were financially responsible.

In the absence of regulation over interstate coach operation

it is the practice of some operators to engage in what is a purely intrastate business under the guise of interstate commerce by merely crossing an imaginary line known as a state boundary.

A recent decision of the United States District Court for the district of Rhode Island indicates that state authorities cannot be deprived of control over intrastate commerce by such subterfuges where the lack of good faith of an alleged interstate operator can be shown. The court said that interstate commerce is more than running coaches across a state line; that it is running vehicles which transport passengers or property interstate, or are honestly intended to do so; and that interstate commerce, in order to be entitled to the protection of the federal constitution, must be real and bona fide, and the question whether it is so is open to inquiry. A mere fiction of interstate commerce may not be availed of so as to deprive a state of its power to enforce sound regulation of the use of its highways in intrastate commerce.

Consolidation of Motor Coach Lines

There is a marked tendency toward organizing a number of coach lines into a system under a single management and control. The history of one large system operating in the states of California, Oregon, Arizona, New Mexico and Texas and hauling more than 200 interstate passengers daily is a good illustration. The original unit of this system was a stage line 35 miles long operating between San Diego, Cal., and Escondido. Since 1912, this unit, by extensions and consolidations, has grown until it represents a transportation system with about 5,000 miles of lines and an investment in plant and equipment of approximately $4,000,000. It is the intention to extend this system into other states. Another California system is said to represent over 100 small coach operations.

Consolidation of coach lines is taking place in all sections of the country, and with stronger and more efficient organizations, larger capital, better credit, reduction in overhead, avoidance of duplication of service, better equipment, mechanically and otherwise, and greater care in the selection of operators, coach service is constantly improving.

"There Is a Marked Tendency Toward Organizing a Number of Coach Lines Into a System"

Motor Trucks

On July 1, 1926, it is estimated there were about 278,800 motor truck fleets consisting of two or more trucks, 33,270 fleets of five or more trucks, and 9,660 fleets with 10 trucks or more. The total number of trucks registered on December 31, 1925, was 2,441,709. Surveys made by the Bureau of Public Roads indicate that common carrier trucks haul less than two per cent of motor-hauled traffic. As a rule large shippers own and operate their own highway transportation equipment. Small shippers hire such service.

Truck operations fall into one of three general classes: (1) Where the truck is owned by the operator and is used in the transportation of his own goods or products in the conduct of his business—the owner-operated truck; (2) the so-called "contract carrier" who enters into special agreements for transportation with one or more shippers but does not hold himself out to haul for the public generally; (3) the common-carrier truck which (a) operates on schedule over a regular route or between fixed termini and usually at published rates from which it may not depart, and (b) the so-called "anywhere for hire" carrier.

In the first class are the trucks owned and operated by manufacturers, merchants, jobbers, farmers and others in the conduct of their business. There is no suggestion from any source that motor trucks of this class engaged in the transportation of interstate commerce should be placed under federal regulation.

A contract carrier may haul for one shipper today over a route on which there is a regularly scheduled common carrier truck line. Tomorrow he may haul for another shipper in a different direction and over a route not served by any common carrier truck line. In addition to transportation, the contract carrier frequently furnishes certain accessorial services, such as moving furniture from one city and setting it up in another city. The intercity movement of furniture by motor truck is increasing in volume and constitutes some of the longest truck hauls. Heavy hauling often requires special equipment and ordinarily cannot be handled by trucks used in regular common carrier service. It is a special service usually performed by contract carriers.

In California fruits and vegetables mature in different sections of the state at different seasons of the year, and contract truck operators move from one section of the state to another as the season advances. As the movement in any one section occupies but a few weeks or months there is a demand for heavy additional truck service during the harvest which is not necessary during the rest of the year, and this peak demand for quick transportation is supplied by contract carriers who are not held to fixed routes. These are a few of many situations instanced to show the necessity for permitting the greatest flexibility in the movement of motor trucks operated by contract carriers.

Common Carrier Trucks

Operators of common carrier trucks operating over regular routes between fixed termini on regular schedules and often on rates fixed by some regulatory body complained that contract carriers, not being bound by schedules, rates, or routes, are able to cut rates, particularly where they are looking for return loads; that they can take business when it is profitable to do so, leaving the common carrier truck to haul the business when conditions are not so favorable.

Some shippers expressed the opinion that if regulation of trucks added to the cost of operation to such an extent that it would be necessary to increase the rates for transportation, they would purchase and operate their own trucks. Opinion also was expressed that if the common carrier trucks were regulated, with their rates and routes fixed from which no departure could be made, while contract carriers were left unregulated and free to make such charge as they saw fit and to transport goods over any route at any time, many common carrier operators would become contract carriers.

Motor truck transportation can be divided into three general classes of service, which are:

(1) Local distribution of commodities. This service constitutes the bulk of the motor truck tonnage movement, and is primarily the distribution of goods within cities and short-haul areas.

(2) Organized motor truck transportation, supplementing existing rail and water service in the following ways: (a) The extension of freight service by motor truck into areas without rail service; (b) substitution of motor truck service for rail operation on unprofitable branch lines; and (c) combination rail and truck service for short-haul less-than-carload freight.

(3) Long-haul transportation of a limited class of special commodities. The volume of long-haul tonnage is comparatively small. This movement depends upon speed or delivery or some special characteristic of the commodity shipped, such as household goods.

Length of Motor Truck Haul

The average haul by motor truck varies in different sections of the country, the more sparsely settled regions having the longest hauls. Around Boston, Mass., the average haul is

Union Motor Coach Terminals Are Numerous

from 20 to 30 miles, with a radius of 50 miles; 35 to 40 miles is said to be the extent of a profitable haul if state regulations are obeyed. In the Detroit, Michigan, area the radius of truck haul is 75 miles; in Minnesota, the average haul is 40 miles; in Indiana, 75 miles; in Connecticut, 47.7 miles; in Ohio, 34 miles for city trucks and 20 miles for farm trucks; in North Carolina, 45 to 55 miles; out of Portland, Ore., 100 miles; in Iowa, 32 miles. In California, Oregon and Texas, truck hauls of 275, 200 to 385, and 297 miles, respectively, were instanced, but these are exceptional.

Although other factors besides length of haul influence the proportions of total tonnage hauled by motor truck and rail lines, respectively, operating in the same territory, there is a tendency for the proportion of motor truck tonnage to decrease with increase in distance. The economic sphere of truck hauls depends, among other considerations, on the character of the commodity, whether perishable or not, the value of time, and whether or not there is competitive service. One large operator in Indiana expressed the opinion that the reduction in ton-mile cost stopped at a point between 50 and 60 miles.

Motor Truck Service

Few complaints were registered against the service rendered by either contract carrier or common carrier trucks. Motor truck service for short hauls was generally commended by shippers. Where quick delivery and saving of time is desired, motor truck transportation particularly appeals to them. In some instances service by motor truck is from 1 to 7 days faster than the service by rail between the same points. Another advantage is the fact that in many cases outbound freight will be received by truck operators from 1 to 3 hours after the railroad freight stations have closed.

Merchants in outlying towns within the radius of truck distribution from jobbing centers can telephone orders for goods and receive delivery by motor truck at their places of business on the same or the next day. As a result they carry smaller inventories but more diversified stocks.

Shippers in the Chicago area explained their use of motor trucks on the basis of: economy, 45 per cent; service and dependability, 42 per cent; special equipment, 7 per cent; advertising, 6 per cent.

Motor Truck Rates

There is even less uniformity in rates and charges for transportation of goods by motor truck that there is in the fares charged for the transportation of passengers by motor coach. It is impossible to make a fair comparison of truck rates with rail rates unless service, time, packing requirements, door-to-door delivery, emergency conditions and other elements are considered.

In Connecticut transportation by motor truck for 20 miles is 3 cents per 100 pounds lower than the rail rates; for 30 miles, it approximates the rail rate; for 50 miles, it is 2 cents higher than the rail rate; for 75 miles, it is 10 cents higher; and for 100 miles, it is 19 cents higher. In Louisiana and North Carolina, truck rates approximate the corresponding rail rates.

Elements considered in fixing truck rates are the distance the shipment is to be hauled, operating conditions, labor involved in handling, number of pick-ups or deliveries to be made, quantity offered at one time, regularity of shipments, weight, length or bulk of articles carried, and whether there is to be door-to-door delivery, or only terminal-to-terminal delivery. Ability to secure return loads is also an important item. Truck rates are quoted by quantity or weight, by distance or zone, or by a combination of these factors.

Rates of contract operators are influenced by the emergency character of a particular job and also by any accessorial services rendered outside of the mere transportation of the property. It is extremely difficult to fix any standard of rates or charges for contract carriers which will not interfere with the flexibility of the service and its usefulness in serving the public.

Motor Truck Interstate Tonnage

The total tonnage of freight transported on the Connecticut highways during the year September, 1922, to September, 1923, was 3,450,000 tons. This is estimated to be approximately 60 per cent of the total tonnage transported on all rural highways in the state. Of this amount, 950,000 tons, 27.5 per cent, represented interstate movement.

It is estimated that 20 per cent of the total trucks operating were commercial trucks carrying 25 per cent of the total tonnage. Of the commercial trucks 75 per cent were contract carriers and 25 per cent, common carriers. The latter hauled only 1.7 per cent and the contract carriers, 5.2 per cent of the total truck tonnage transported in interstate commerce in Connecticut.

Motor Truck Operating Costs

Operators of individual trucks and even of fleets of trucks generally have not kept adequate cost records.

Analysis by the Bureau of Good Roads of available operating cost records of commercial truck operations indicates that the short haul, 45 miles or less, is profitable while the long haul is unprofitable. One large operating company, during 1924, in its 100-mile hauls, had a loss of $27,930, which was 12.9 per cent of total operating revenue. Fixed charges, consisting largely of terminal expenses, were 56 per cent of total costs. On its short haul business (45 miles or less) the same company showed a net profit of 17.4 per cent during 1924. Fixed charges in the short haul zone amounted to approximately 39 per cent of total costs.

Operating costs ranged from 20 to 25 cents per mile, fixed charges from 28 to 34 cents, and total costs 45 to 54 cents per mile.

Common Carrier Fees and Taxes on Motor Trucks

At the close of 1925 there were 25 states which charged fees for common carrier motor trucks in excess of the regular motor truck fees. The average common carrier fee in these states, for a three-ton truck with pneumatic tires, weighing 7,000 lb. tare, an annual mileage of 20,000, and annual gross receipts of $12,000, was $276.34, as compared with a fee of $64.03 for the same truck licensed as a private carrier. The common carrier fees range from $45 to $720, the private carrier fees in the same states being $35 to $200. The greatest difference between the common carrier and the private carrier fees is $535 in a state that charges $600 for the common carrier truck and $65 for the private carrier truck.

The average license fees and gasoline taxes amount to 3.2 per cent of the assumed annual gross receipts of $12,000. The average tax per capacity ton-mile is 6.3 mills. As the load factor is probably but 50 to 75 per cent of capacity, the actual rate is somewhat in excess of this amount.

Transportation of Live Stock by Motor Truck

Transportation of livestock to terminal markets has always been a matter of concern to farmers, more especially to those who raise livestock on a relatively small scale as a part of regular farm operation. When dependent on rail service, the farmer could only ship at times when there was enough stock available to make a carload. Now, through the use of the radio, he gets market quotations daily and can load his stock into a motor truck and drive to market, arriving there in about the same time ordinarily required to reach a railroad shipping point, if he were shipping by rail, with a saving of about 18 to 36 hours in the time of transit.

Three and one-third million head of hogs were motor-trucked to 15 of the principal markets in the United States in 1925, being almost 11 per cent of the total receipts. Six per cent of the sheep, more than 12 per cent of the calves, and 4.5 per cent of the cattle received at these 15 markets were hauled by motor truck.

Livestock is hauled to market by operators owning two or more trucks and engaged exclusively in hauling livestock; by operators with one or more trucks who do a general hauling business and are engaged in hauling other commodities; the small operator with possibly a single small truck handling six or eight hogs at a load, or three or four cattle; and the farmer-owner hauling his own stock, and perhaps, bringing as part of the load, animals picked up at neighbors' yards to complete the load. Shipments of poultry by motor truck are increasing in number. A farmer in Minnesota stated that though there was a shrinkage of five or six pounds per crate on rail shipments, it was only about one pound when motor trucks were used. He can deliver his poultry in Minneapolis, a distance of about 50 miles, in a little over two hours by truck and is enabled to obtain the benefit of the Minneapolis market price which is usually five or six cents per pound over his local market. The advantage of motor truck transportation for shipments of livestock for short distances are: A minimum of shrinkage, quick delivery, ability to take advantage of favorable market prices, less cost for food and watering stock, and ability to make shipments of a few animals at a time.

Transportation of Milk by Motor Truck

Between 1910 and 1924, the motor truck had taken over the bulk of the shipments of milk formerly handled by electric railways and wagons and also a part of the steam railroad short-haul shipments. This is largely accounted for by the gradual crowding back of dairy farms with the growth of city suburban areas and by the shifting from rail to motor truck transportation for distances up to 50 miles because of certain advantages possessed by the motor truck. Among these advantages are: (1) Truck passes producer's gate and the truck driver acts as producer's personal agent in the city; (2) shipment by truck reduces the number of handlings from six or more to only two; (3) trucks lose fewer cans; (4) elimination of the haul from the railroad milk platform to the city milk dealer results in an estimated saving of five cents a hundredweight.

Shipping by motor truck saves time where distances are not too great and eliminates the city terminal handling and transportation costs. Approximately 90 per cent of all milk brought into the cities of Cincinnati, Detroit, Milwaukee, St. Paul, Minneapolis and Indianapolis is brought in by motor truck. About 20 per cent is trucked into Philadelphia, while Baltimore receives 45 per cent of its supply by truck.

Of the trucks hauling milk into these cities, 65.6 per cent operate within a radius of 29 miles and only 6.8 per cent operate over routes 50 miles and over in length. The trucks are usually operated by individuals who live in the rural sections and operate one or two trucks. Twenty cents per ton-mile is the usual rate in the 30 to 39-mile zone. For shorter distances the rates are higher. A comparison of rail and motor truck rates for hauling milk shows that truck rates are the same as rail rates or somewhat higher.

Bulk transportation of milk has developed the tank truck. The glass-lined tank truck is suited for the hauling of milk from country stations to city plants, especially when neither is located directly on a railroad and when the distance is not beyond the economic range of truck haulage. The capacities of the tanks range from about 800 to 2,000 gal.

Store-Door Delivery and Terminal Congestion

A railroad's capacity is practically limited by the capacity of its terminals. Congested terminals mean embargoes, delays and loss. Terminal operation is probably the most complex and costly of the operations of railroads. In the matter of terminal service the motor truck is now practically indispensible. Through its use the time of transit, unloading time and labor cost are reduced and equipment for line-haul service is released more quickly.

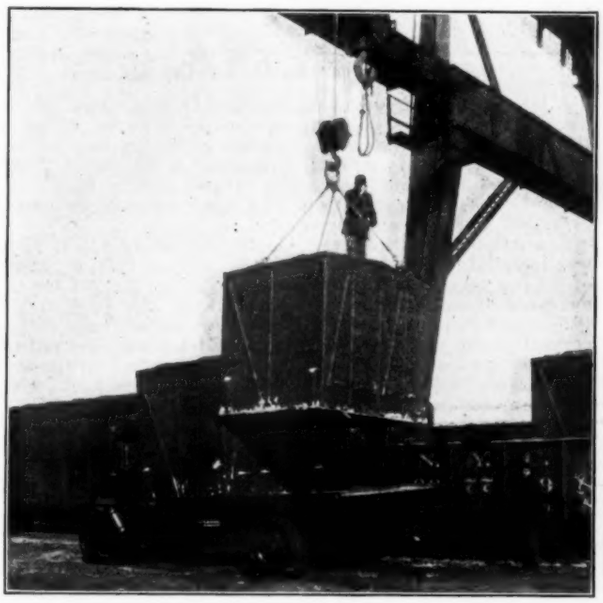
Store-door delivery is today receiving the earnest consideration of railroad executives and shippers' representatives, as well as of the commission. Store-door delivery would mean quicker and better service to the shipper with a great saving of time, elimination of terminal congestion, consolidation of freight into fewer cars, and reduction in use of stations and cars for storage.

Development of New Areas and New Business

There are approximately 125,000 population centers or communities of appreciable size in the United States. Approximately 80,000 of these have freight stations on railways, leaving about 45,000 communities without such service. It is estimated that the 45,000 communities now having no rail service constitute not less than 10 per cent of the entire population of the country. Motor transportation has given to a substantial portion of the country's population transportation facilities which have enabled them to contribute in greater measure to production, and to secure the benefits of increased production and earnings in higher wage levels, and better standards of living.

In Indiana, there are 185,000 people living within 75 miles of Indianapolis, who have no direct rail communication with that city.

In the same state there are 600 towns and villages with a population of 50 or more which have no direct rail service. Of these, 500 are served by motor truck lines and



"There Should Be a Wise and Farsighted Co-ordination of All Existing Transportation Agencies"

280 have regular coach service. In California 855 towns rely entirely on motor transportation.

New farming areas have been opened with the advent of good roads and motor transportation. Farms which were near cities but without effective transportation service now produce vegetables, fruits, and berries as well as poultry and dairy products, which can be marketed expeditiously by motor truck. Shipments of farm products are also trucked to assembling points from which carload lots are shipped by rail.

Decrease of Railway Passenger Revenues

Much of the evidence of the railroads related to the loss of traffic following the advent of motor vehicle transportation. Private automobiles and motor coaches have made heavy inroads on railway passenger revenues, particularly since 1920.

During the period from 1920 to 1926, inclusive, the number of passengers carried by the Class I steam railroads in the United States decreased from 1,234,862,048 in 1920 to 860,343,019 in 1926, or 30.33 per cent. During the same period the passenger revenues decreased from $1,286,613,273 to $1,041,822,049, or 19.03 per cent.

The New York, New Haven & Hartford estimated a revenue loss of $3,327,852 per year due to motor coach competition, of which amount $1,730,277 was due to interstate coach competition. Its loss due to both the private automobile and the coach was estimated at $27,899,287, which represented about 40 per cent of the revenue.

The Denver & Rio Grande Western's local passenger traffic in Colorado decreased from 987,159 passengers in 1920 to 459,627 passengers in 1925, a loss of 53.4 per cent; the decrease in revenue was 38.5 per cent. The Erie's passenger traffic from eight primary stations in New Jersey to New York, N. Y., decreased 17 per cent in 1925. The number of

passengers carried by the Georgia & Florida decreased from 522,137 in 1920 to 173,061 in 1925.

Practically the only reason assigned for the loss of passenger traffic was the private automobile and the motor coach. Estimates of the portion of the loss that should be attributed to the private automobile varied from 50 per cent to about 90 per cent.

Coach lines have developed some new passenger business. In October, 1921, the railroads operating between Topeka, Kan., and Kansas City, Mo., hauled 25,776 passengers, while in the same month in 1925, they hauled 6,551, a loss of 19,225. During October, 1925, a coach line operating between the same points hauled 38,194 passengers, or nearly twice as many as the loss shown by the railroads. In 1925, the Northern Pacific carried 372 fewer passengers between Fargo, N. D., and Jamestown, than it did in 1924, while a coach line operating between the same points showed an increase of 4,664 passengers in 1925 over 1924.

Decrease in L. C. L. Traffic

A large volume of short-haul, less-than-carload traffic formerly handled by the steam railroads, now moves in motor trucks. In 1920, Class I steam railways, handled 89,901,495 tons of less-than-carload freight; in 1926, it dropped to 68,296,686 tons, a decrease of 24.03 per cent. The carload freight handled by these carriers increased from 64,439,482 carloads in 1920 to 71,060,904 in 1926, or 19.28 per cent.

The less-than-carload traffic handled by the Boston & Maine was 1,999,658 tons in 1921 and 1,718,838 tons in 1925, a decrease of 14 per cent. During the same period its carload tonnage increased from 18,060,925 tons in 1921 to 21,854,939 tons in 1925, about 21 per cent. If the less-than-carload traffic had increased in the same ratio as the carload tonnage, the railroad estimated its loss in less-than-carload traffic, based on the average revenue of $6.83 per ton on local, less-than-carload freight, in 1925 as compared with 1921, at approximately $4,786,000.

The reduction in l.c.l. tonnage was generally attributed to motor truck competition although some suggestion was made that a small portion may have been taken away by express companies and parcel post.

Although the l.c.l. tonnage in 1924 constituted 3.13 per cent of the total tonnage handled by Class I steam railroads, it was stated that 25.7 per cent of the railroads equipment was used to handle it and 32.2 per cent of the claims paid were on this l.c.l. traffic.

Short Lines' Position Acute

It is the branch lines and short lines which feel most keenly the loss of passenger and freight revenues attributed to motor vehicle competition. While trunk lines, with an increasing volume of long-haul tonnage, may overcome the loss of short-haul traffic, the profit of which has been disputed, it is not so with the short lines. Their situation presents one of the acute problems induced by the rapid growth of motor vehicle transportation.

A solution of the problem of the short line whose existence is threatened by motor carrier competition, but whose continuance is important to the communities served, may be in consolidation with trunk-line systems.

From 1920 to May 1, 1925, the commission authorized the abandonment of 120 lines and branches aggregating 2,439 miles. Competition with motor vehicles was cited as the primary cause of abandonment for 4.3 per cent. The effect of motor carrier competition has shown more in curtailment of train service than in actual physical abandonments. In some instances passenger service has been discontinued on certain branch or short lines; in other cases the service has been curtailed.

Where passenger trains are operated at a loss the deficit must come from freight revenues. Where the convenience of the public is not greatly affected, it is not just to compel the many to contribute in freight rates for the continuance of a service operated at a loss for the benefit of the few.

There are not many instances in which there has been a discontinuance of freight train service, but there has been some curtailment of local freight service. In some cases freight service three times a week has been substituted for daily service.

Joint Rates and Through Traffic Arrangements

A small number of carriers subject to the interstate commerce act have joint rates, rates, and charges and through traffic arrangements with motor coach or motor truck lines operated either by themselves, their subsidiaries or independently.

The commission has held that motor carriers are not common carriers subject to the act, but that when services are performed by motor carriers in connection with terminal services of a common carrier subject to the act, or with the transfer of commerce in transit at an intermediate point by such common carrier, such motor service is part of the transportation service by a carrier over which the commission has jurisdiction and such motor carrier service is under the jurisdiction of the commission. Carriers subject to the act may publish tariffs covering charges for such terminal service by motor carriers the same as charges for any other service granted by them as part of their transportation service.

The law does not prohibit either a rail or water carrier subject to the act from interchanging business with motor carriers and entering into proper arrangements to acquaint the public with the total charges for the complete movement, but such arrangements are not required by the act, and as section 6 requires that the charges for services subject to the act must be filed with the commission, it is necessaary that the statement in the tariff as to the charges of the motor carrier for its service be made separately from other charges for services subject to the act.

Section 15 (a) and Its Relation to Operations of Motor Carriers

Section 15 (a) of the interstate commerce act provides that the commission shall prescribe aggregate rates for carriers which as a whole will, under honest, efficient and economical management and reasonable expenditure for maintenance, earn an aggregate net railway operating income equal, as nearly as may be, to fair return upon the aggregate value of the railway property of such carriers held for and used in the service of transportation. In view of these provisions, it is highly important that the practices of carriers subject to the act, in respect to their connection with any motor carrier operations and their accounting for such operations, should be uniform and definite.

The term "carrier" as defined in section 15 (a) does not include motor carriers. The revenue from and expenses of motor carrier operations performed by a subsidiary of a carrier subject to the act cannot be included in reports of its operations under the act and need not be reported to the commission, and are not considered in determinng whether the carriers are or are not earning a fair return.

Whether motor carriers in competition with rail lines are operated by a railroad directly or by a subsidiary company or independently, there is opportunity for diverting traffic to such motor carriers which may seriously affect net railway operating income. The Northland Transportation Company, a subsidiary company of the Great Northern, operating 144 coaches over about 3,000 miles of coach routes, carried a total of 1,032,288 passengers during the first six months of 1926. Much of the coach route mileage of the Northland parallels the rail lines of the Great Northern and other rail carriers. It therefore seems advisable that the earnings and expenses and investments of such motor vehicle operations of carriers subject to the interstate commerce act, directly or through subsidiary companies, should be declared by law as coming within the provisions of section 15 (a) and be regularly reported to the commission, together with statistics used in determining net railway operating income.

The present classification of accounts prescribed by the commission for steam railroads became effective on July 1, 1914, when the use of motor carrier operations by or in connection with steam railroads or electric railways was insignificant. Some confusion has been experienced by carriers subject to the act in properly accounting for motor carrier operations. A more detailed classification of accounts adapted to the peculiar problems of motor carrier operation is necessary.

Public Interest Paramount

The public interest and national welfare are fundamental in legislation affecting transportation and in the administration of regulatory laws. When there is conflict between public interest and private interest, the former is paramount and the latter must give way.

Railroads have no more economic right to any traffic than had the canals and stage coaches which opposed the construction of railways on the ground that they would take traffic already being carried on the canals and highways. But economically wasteful rivalries which marked the past should be avoided, for, in the end, the public must pay.

It is not a question of whether any particular transportation agency shall prevail or be given advantage. Ruthless, inexorable economic laws will eventually determine that, no matter what attempts may be made to impede or interfere with natural progress. The readjustment or readaptation of transportation facilities should be made with the least possible economic waste. Regulatory legislation and administration should have the single purpose of improving transportation.

It is not always easy to determine what is the public interest.

With reference to the present problem induced by the rapid growth of motor transport, it may be difficult to determine where the public interest lies if motor transport draws traffic to such an extent from existing railway or electric lines that the earnings of these lines are so impaired that they can no longer adequately serve the public. The public is interested if there should arise a question as to which agency should continue to exist when, by reason of the sparseness of traffic, both cannot do so. The public is interested in the extent and manner in which motor vehicles for hire use the highways, particularly, as related to the primary use of such highways by the public in private automobiles.

Certificates of Convenience and Necessity

The vital factor in regulatory control over motor carriers is the certificate or permit issued by the regulatory body for a specified motor operation after finding that it is in the interest of "public convenience and necessity." Certificates of convenience and necessity or permits to operate common carrier motor vehicles are now required in 41 states for carrying passengers and in 39 states for carrying goods. Certificates of convenience and necessity are required not so much with a view to safety or to the conservation of the highways, but primarily for the purpose of protecting the public interest by excluding unnecessary and wasteful competition and by determining what persons or companies are best able to serve the public.

Whether or not a certificate of convenience and necessity shall be issued for a motor carrier operation often presents a difficult economic problem. In some states an existing transportation agency or agencies in the territory to be served by the applicant for a certificate must be given consideration in determining the question of convenience and necessity; in other states no consideration is given to existing facilities. In Illinois a railroad serving the territory in question must be given first opportunity to supply any motor coach service which may be deemed necessary in the public interest.

The primary object of regulatory laws is not to establish a monopoly or guarantee the security of investments in public service corporations but to serve the interests of the public. In considering the question of whether or not a new transportation service should be permitted in competition with an established service, it is, however, economically sound and in the public interest to require that available transportation facilities be taken into consideration, as well as the effect the proposed new service would have on the existing transportation agency or agencies, the continued operation of which is important to the territory served. No preference as a matter of right or law should be given to an established transportation agency where it is a question of furnishing a different kind of service. In determining the matter the regulatory body can and should give reasonable consideration to the financial responsibility, organization, and experience of an existing transportation agency and its ability to supply adequate and permanent service.

In most states a certificate of convenience and necessity is unassignable, but usually is transferable with the consent of the issuing body. Certificates are revocable in some states for violation of statutory provisions or of the orders or rules of the regulatory body. In some states a certificate may be revoked "for good cause." Revocation of a certificate, once granted, should be permitted only under circumstances of compelling public necessity.

In some states the regulatory laws provide that a carrier actually in operation on a certain date and continuously after that date is entitled to a certificate upon filing application and showing that its operation on and prior to that date was in good faith. Such a provision is sometimes referred to as a "grandfather clause." In other states there is no such provision.

It is only fair that the interests of motor carrier operators who have pioneered and have operated their properties successfully should be protected, and the fact that an applicant for a certificate of convenience and necessity was in bona fide operation on March 2, 1925, and continuously since then and at the time application is made should be considered prima facie evidence as to the convenience and necessity of such operation. Prior to that date interstate operators, in general, had submitted to the regulation exercised by the states, and it is a fair presumption that such operations were in good faith. In view of the large number of interstate operations which sprang up in all sections of the country within a short time after that date, no such presumption can be fairly indulged in with respect to operations instituted at later dates. In Illinois, a single coach was engaged in interstate operation from 1916 to 1920, inclusive; in 1921, two; in 1922, three; and in 1923 and 1924, six. On December 31, 1925, less than a year after the decisions in the Buck and Bush cases, there were 121 coaches engaged in interstate operations which also held certificates permitting intrastate operations, and approximately 125 non-certificated coaches engaged in interstate operations in Illinois.

In determining the question of whether a certificate should be granted, consideration should be given to the likelihood that the proposed service will be adequate and continuous. As a condition to the exercise of rights granted in a certificate of convenience and necessity, the holder of the same should be required to undertake to furnish such additional service on the route covered by the certificate as the needs of the public might demand in the future.

Liability Insurance and Indemnity Bonds

In 39 states common carriers of passengers by motor vehicle, and in 29 states such carriers of property, are required to carry liability insurance. Two states require cargo insurance. The requirements as to liability insurance and indemnity vary somewhat in the different states. Generally, there is a provision fixing a minimum liability insurance in a certain amount, usually $5,000 for injuries to a person and $10,000 in case of death. In some states the indemnity required is based on the seating capacity of the motor coach. There is usually a provision requiring insurance against property damage.

Insurance is a heavy item in operating costs. A coach operator in Ohio paid a premium of approximately $700 per year for liability insurance on a coach valued at approximately $8,000. In some states the regulatory body may exempt an operating company from carrying liability insurance in a regular insurance company if it is satisfied as to the financial strength and responsibility of the operating company.

One of the prerequisites of operations in any regulation of motor carriers should be a requirement that a policy of liability insurance or an indemnity bond sufficient in amount to insure financial responsibility of the operator should be filed with the regulatory authorities.

Need for Regulation

There are few persons, if any, familiar with the history of railroad transportation, and particularly as to its economic aspects, who will not say that the public and the railroad companies would have fared better if railway regulation had come much earlier than it did.

If it is not burdensome or unduly restrictive to have the intrastate transportation of passengers in 44 states, and of property in 33 states, by common carrier motor vehicles over the public highways conducted under regulation by state authorities, why should it be burdensome or unduly restrictive for the relatively small portion of common carrier motor-hauled commerce that moves interstate to be also under regulation similar to that prevailing in most of the states in connection with intrastate commerce? It is not consistent with sound public policy that the public, primarily entitled to use the highways, should be protected against undue and unnecessary use of such highways by common carrier motor vehicles engaged in intrastate commerce, while unlimited and unrestricted use of them may be made by common carrier motor vehicles operating in interstate commerce. Wear and damage to the highways and the hazards of transportation are the same whether a motor vehicle of a certain type is moving in interstate or in intrastate commerce.

With no law regulating interstate commerce carried over the public highways, such commerce can now be, and is, carried on by as many as desire regardless of financial responsibility and free from the slightest control or regulation as to routes, fares, schedules, public convenience and necessity, and comfort or safety of passengers. Operators engaged in such business are not required to report to any authority and, save for the police regulations of states and municipalities, are subject to none. They may operate at their pleasure and may cease operation temporarily or permanently as they choose. There is nothing to prevent them from discriminating unduly and competing unfairly. The public using such lines have no governmental agency of any description to which they may appeal in the matter of rates, routes, schedules or safety in the use of the public highways.

Highways belong to the public and are primarily for the use of the public in the usual and ordinary way. Their use for purposes of gain is unusual and extraordinary, and generally, at least, such use may be conditioned as legislators deem proper. The public, through Congress, should say in what manner and under what conditions interstate commerce carried by common carrier motor vehicles on the public highways may be conducted.

Carriers now subject to the interstate commerce act should be authorized by law to engage in motor carrier operations, either directly or through subsidiaries, upon obtaining certificates of convenience and necessity as provided in such law. If motor vehicle operations conducted by carriers subject to the act are placed under regulation, it is only fair that independently operated common carrier motor vehicles engaged in interstate commerce should also be under regulation.

Congress has the power to regulate interstate commerce by private carrier or contract carrier. It should be made clear, however, that no regulation of motor trucks operated by the owner incident to the conduct of his business is intended.

As to contract carriers, it does not seem advisable to attempt the regulation of commerce carried by this class of operator at this time when the initial step into an entirely new field of regulation of interstate commerce is to be taken. The operations of contract carriers are, to a great extent, highly specialized, and it would be extremely difficult to fix charges for such carriers or to confirm them to fixed routes without impairing the usefulness of their service, which requires the greatest flexibility. When such operations have become more standardized, and there has been time for the working of economic laws to assist in the solution of this phase of the problem, some form of regulation for carriers of this type may be advisable or necessary. There is no urgent demand or necessity in the public interest for their regulation at this time.

Regulation Should Be Simple

Regulation of common carrier motor vehicles operating in interstate commerce should, at first, be simple. The problem is a comparatively new one and it is too early to attempt the regulation of such carriers by a rigid law. Regulation should go no further than is fairly necessary to protect the public interest and improve transportation.

The transportation of passengers and property by motor vehicle is at present a distinctly local proposition, the character of which is not changed by the mere incident of crossing a state boundary line.

In the course of the hearings the administration of state regulatory laws by state commissions was commended by shippers and motor vehicle operators generally, as was also the regulation they exercised over interstate motor vehicle operations during the period while they assumed jurisdiction over such operations. If interstate commerce by common carrier motor vehicles is to be regulated at this time, original jurisdiction in the administration of such regulatory laws should, so far as possible without contravention of the commerce clause of the federal constitution, be vested in state regulatory bodies or officials, with the Interstate Commerce Commission acting as an appellate tribunal.

Power of Congress Under Commerce Clause

Can the administration of federal regulatory laws over interstate commerce by motor carriers be delegated constitutionally to state agencies by Congress? The power of Congress over interstate and foreign commerce is plenary. It is derived from Section 8 of the constitution, which provides that the Congress shall have power to regulate commerce with foreign nations and among the several states.

The power of Congress to regulate the instrumentalities or agencies of transportation grows out of its power to regulate commerce and is not limited to commerce by a common carrier, but extends to all commerce, whether by common carrier, private carrier, or by an individual for his own purposes. Congress may regulate interstate commerce by any proper and constitutional means. State officers, unless prohibited by the constitution or laws of the state, may be authorized by federal statutes to perform duties conferred by a federal statute, but they cannot be compelled to perform such duties.

Congress undoubtedly has the right to delegate to state agencies the administration of federal statutes, and it seems reasonably free from doubt that it can do so in the administration of laws regulating interstate commerce, particularly if provision is made for an appeal from the action of such agencies to a federal tribunal.

Vesting of Jurisdiction

In view of the predominantly local character of motor transportation, Congress should vest in state regulatory bodies original jurisdiction in the regulation of interstate commerce by common carrier motor vehicles operating on the public highways within general lines marked out by the statute. In general, the plan of administration, in respect to the designation of the boards and the formation of joint boards composed of representatives of two or more state boards or of the Interstate Commerce Commission, whenever it becomes necessary for it to act for a state board, along the lines set forth in the Cummins-Parker and Denison bills should be followed. Right of appeal from the action of any state board or joint board to the Interstate Commerce Commission should be preserved.

Co-operation between state authorities and the Interstate Commerce Commission in matters pertaining to common carrier regulation would not be a new proposition. Section 13 of the interstate commerce act authorized co-operation and conference between state commissions and the Interstate Commerce Commission with respect to the relationship between rate structures and practces of carriers engaged in interstate and intrastate commerce. Arrangements have been devised and put into effect under which this is accomplished. Each body retains jurisdiction in its own sphere but reaches its conclusions on a common record made at a joint hearing, and after conference.

A certificate of convenience and necessity and the filing of a policy of public liability insurance or indemnity bond which will give assurance that there is adequate protection for the responsibility assumed in the transportation of passengers or property by motor carriers should be prerequisities to common carrier operation.

In the matter of rates, service, accounts, reports and rules and regulations governing motor vehicle operations and service, wide discretion should be vested in the regulatory authorities. They should have the right to exempt motor vehicle operators from keeping such accounts or making reports where circumstances and the public interest justify such course, as in the case of small operators who are performing a valuable service in the communities served but who might not be able to continue operations on account of the labor and expense necessary to comply with such regulation. They should also be authorized to exempt small operators or others from publishing rates, fares, or charges where it is deemed that circumstances of the particular case and public interest warrant such action.

There should be a wise and farsighted co-ordination of all existing transportation agencies—land, water and air. The nation's transportation machine must be kept at its highest efficiency so as to advance the prosperity of the country and promote the happiness and welfare of its citizens in peace, and in order that it may be prepared to respond as a tremendous factor in the national defense in time of war.

Conclusions

The examiners' conclusions follow in full:

1. Transportation of passengers and property by motor vehicles operating over the public highways is a well established, useful, and permanent factor in the Nation's transportation system.

2. Steam railroads and electric railways are engaging more and more extensively, either directly or through subsidiaries, in motor vehicle transportation as supplementary to their rail operations to replace train operations, or as feeders or distributing agencies.

3. Carriers now subject to the act should be authorized by law to engage in motor vehicle service over the public highways, directly or through subsidiaries, upon obtaining a certificate of convenience and necessity as provided in such law.

4. The revenues, expenses, and investments and other statistics incident to motor vehicle operations by carriers now subject to the act, either directly or through subsidiaries, should be required to be regularly reported to the Commission and be declared by law as coming within the provisions of section 15a of the interstate commerce act in determining net railway operating income under the provisions of that act.

5. A more detailed classification of accounts adapted to the peculiar problems arising from motor carrier operations by carriers subject to the interstate commerce act, directly or through subsidiaries, should be adopted.

6. Carriers subject to the interstate commerce act and their motor carrier operations should be authorized by law to participate in joint rates and through routes with common carrier motor bus and motor truck lines holding certificates of convenience and necessity from some regulatory body in substantially the same manner as they are now authorized to do with carriers now subject to the act.

7. The problem of regulating motor vehicle operations in interstate commerce is a comparatively new one, and it is too early to attempt regulation by a rigid law. It seems wise, however, to lay down a few principles governing such operations at this time.

8. The law should provide for the regulation of interstate commerce by motor vehicles operated as common carriers of passengers and property over public highways.

9. Regulation should not include motor vehicles operated by the owners incidently to the conduct of their business.

10. The motor vehicle operations of so-called "contract carriers" are not sufficiently standardized to make the regulation of such operations in interstate commerce advisable at this time.

11. Motor carriers operating in interstate commerce as common carriers should be classified: (1) Those operating between fixed termini or over a regular route; (2) all other common carriers.

12. Original jurisdiction in the administration of regulation

over motor vehicles operating in interstate or foreign commerce as common carriers over the public highways should be vested in such State regulatory bodies as notify the Interstate Commerce Commission that they will act. The Interstate Commerce Commission should be delegated to act with original jurisdiction whenever a State board fails to notify the Commission of its acceptance of the delegation of authority to act under the Federal statute, and until such notice is received. Joint boards composed of two or more State boards, or representatives of such State boards and of the Interstate Commerce Commission, when acting for a State board, should be authorized to act where the commerce is carried on in two or more States.

13. The right of any party to appeal from the action of a State board or a joint board to the Interstate Commerce Commission should be preserved.

14. Legislation for the regulation of motor vehicles operating as common carriers over the public highways should provide as prerequisites to operation:

(1) Certificate of convenience and necessity;
(2) Liability insurance or indemnity bond or satisfactory assurance of financial responsibility which will insure adequate protection for the responsibility assumed in the transportation of passengers or property.

15. The law should provide that in determining whether or not public convenience and necessity require the granting of a certificate to operate, reasonable consideration, among other pertinent matters, should be given to available transportation service by any other existing transportation agency operating in the same territory, and to the effect which the proposed service may have upon any such existing transportation agency, the continued operation of which is important to the community served by it.

16. The law should provide that the fact that an applicant for a certificate of convenience and necessity was in bona fide operation on March 2, 1925, and continuously since then and at the time application is made shall be considered prima facie evidence as to the convenience and necessity of such operation.

17. Transfer of certificates of convenience and necessity should be permitted with the approval of the issuing board. Revocation of a certificate should only be permitted under circumstances of compelling public necessity.

18. As a condition to the exercise of rights granted with a certificate of convenience and necessity, the holder of the same should be required to undertake to furnish such additional service as the needs of the public might demand in the future.

19. The law should require that rates be just, reasonable, not unjustly discriminatory, and not unduly preferential or unduly prejudicial.

20. Provision should be made for the filing of complaints against rates, practices, or service of motor vehicles operating in interstate commerce over the public highways. The procedure upon hearing of such complaints should be substantially the same as the procedure at hearings upon complaints against steam railroads or electric railways.

21. The regulatory boards should be vested with wide discretion in the administration of the law, particularly with respect to rates, fares, and charges, accounting and filing reports; and in the making of rules and regulations for the regulation of motor vehicle operations and service.

22. Broad discretionary powers should be given to the regulatory boards in the matter of exempting interstate motor vehicle operations from any of the provisions of the law if such exemption would be in the public interest, as in the case of small operators who are giving transportation service important to the communities served, but who might be unable to continue operations if required to comply with all regulatory provisions on account of the additional expense involved.

23. Brokerage in transportation of passengers for hire in interstate commerce by motor vehicles operated by a person or company not holding a certificate of convenience and necessity from a regulatory body covering such service should be prohibited.

24. The issuance, interchange, or exchange of free passes and free transportation by common carrier, motor carriers operating over the public highways in interstate commerce should be prohibited, except in substantially the same manner and to the same extent as provided for in the case of common carriers now subject to the interstate commerce act.

25. Federal legislation for the regulation of commerce by motor vehicles should include the transportation of passengers or property to or from a foreign country, but only so far as such transportation takes place within the United States, in substantially the same manner and to the same extent as interstate commerce.

26. The transportation of explosives and inflammables by motor vehicles in interstate or foreign commerce is prohibited by the Transportation of Explosives Act, except and in the manner provided therein.

27. The provisions of the Bills of Lading Act are applicable to motor carriers operating in interstate or foreign commerce.

28. The provisions of the Clayton Antitrust Act relating to the business and transactions of common carriers are applicable to the business and transactions of motor carriers operating as common carriers in interstate or foreign commerce.

29. Public policy demands the fostering and preserving in full vigor motor vehicle transportation as well as rail and water transportation. Section 500 of Transportation Act, 1920, should be amended to include motor vehicle transportation in the declaration of policy there made.

30. There should be a wise, farsighted, and definite co-ordination of all existing transportation agencies—land, water, and air.

Motor Transport Division Has Organization Meeting

NINETY-TWO officers representing 76 railways attended the first meeting of the Motor Transport Division of the American Railway Association at Chicago on January 25. No fixed program had been arranged by the temporary general committee and the meeting was thrown open to discussion of subjects to be considered by the division following the opening business, which consisted of the election of officers and appointment of a permanent general committee. A. P. Russell, temporary general chairman of the Motor Transport Division and former chairman of the Railroad Motor Transport Conference, was elected chairman of the division. Mr. Russell is vice-president of the New York, New Haven & Hartford and president of the New England Transportation Company. Other officers elected were as follows: Vice-chairman, Motor Coach Section, T. B. Wilson, vice-president and manager, Southern Pacific Motor Transport Company; vice-chairman, Motor Truck Section, G. C. Woodruff, assistant freight traffic manager, New York Central; Secretary, George M. Campbell. The office of vice-chairman in charge of the Rail Motor Car Section was not filled.

The following were elected members of the General Committee: J. G. Drew, vice-president, Missouri Pacific; H. F. Fritch, passenger traffic manager, Boston & Maine, and president, Boston & Maine Transportation Company; A. Hatton, general superintendent of transportation, Canadian Pacific; C. S. Lake, special assistant to president, Chesapeake & Ohio; G. W. Lupton, assistant to vice-president, Atchinson, Topeka & Santa Fe; R. K. Stackhouse, general superintendent, stations, transfers and motor service, Pennsylvania; and R. N. Van Doren, vice-president and general counsel, Chicago & Northwestern.

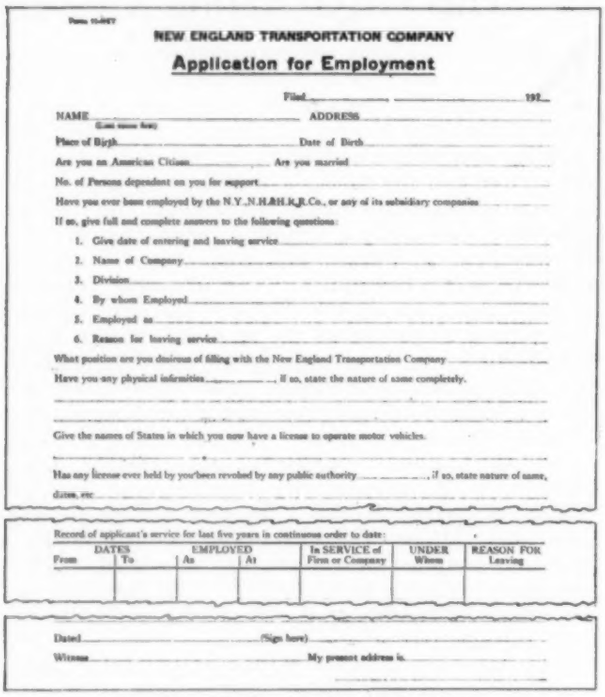
To Meet Three Times Each Year

Meetings of the Motor Transport Division will be held three times annually—in June, October and February. The next meeting will be held at Atlantic City, N. J., at the same time as the meeting of the Mechanical Division. The officers elected at the meeting this week will hold office until the October meeting of the division, which will be known as the annual meeting. It was decided to appoint a joint committee with the Mechanical Division in connection with studies made on motor transport equipment.

Selecting and Disciplining Employees

What railways require in hiring motor coach drivers and mechanics and how efficient work is obtained

SINCE the railway motor coach companies recognize that efficient operation depends chiefly upon their employees, they are careful in selecting them and keep a close check on their work in order that laxness and inefficiency may be prevented. The practices followed by the railway coach companies in hiring, training and disciplining their employees, in both the operating and mechanical departments, are outlined below. The information given has been obtained through the courtesy of the officers of the companies mentioned.



NEW ENGLAND TRANSPORTATION COMPANY

Application for Employment

Filed ..... 19..

NAME ..... ADDRESS .....

(Last name first)

Place of Birth ..... Date of Birth .....

Are you an American Citizen ..... Are you married .....

No. of Persons dependent on you for support .....

Have you ever been employed by the N.Y., N.H.&H.R.R.Co., or any of its subsidiary companies .....

If so, give full and complete answers to the following questions:

1. Give date of entering and leaving service .....
2. Name of Company .....
3. Division .....
4. By whom Employed .....
5. Employed as .....
6. Reason for leaving service .....

What position are you desirous of filling with the New England Transportation Company .....

Have you any physical infirmities ..... If so, state the nature of same completely.

Give the names of States in which you now have a license to operate motor vehicles.

Has any license ever held by you been revoked by any public authority ..... If so, state nature of same, dates, etc .....

Record of applicant's service for last five years in continuous order to date:

DATES From	To	EMPLOYED As	At	In SERVICE of Firm or Company	UNDER Whom	REASON FOR Leaving

Dated ..... (Sign here) .....

Witness ..... My present address is .....

The New England's Application Form

The requirements of the railways in hiring motor coach operators vary only in number. Without exception good character and physical fitness are a prerequisite to employment as drivers. The Maine Central and its subsidiary, the SamOset Company, require only that their drivers be careful and honest. The Rutland has no fixed rules relative to the qualifications of prospective coach operators, but it makes a general investigation of their ability, experience and character. No special course of training is given. The Union Pacific Stages, Inc., before employing coach operators, obtains the customary personal record applications and satisfies itself as to their qualifications and previous records.

The Nashville, Chattanooga & St. Louis has drafted a set of rules applying to coach operators and requires them to undergo an examination on these rules after passing a physical examination. Their character is also investigated. The policy of the Norfolk Southern is to start applicants for positions as coach drivers at work in the shop to familiarize them with the engines and equipment, after which they are tried out on the road. After such men have qualified and been approved, both by the master mechanic and the supervising operator, they are placed on the eligible list for call, in accordance with seniority.

Favors Trainmen

The Canadian Pacific Transport Company selects its coach drivers from among its employees in train service, who have seniority in that department. When it first undertook motor coach operation some of the men in train service evinced a desire to operate the coaches and they were permitted to do so. When men are taken from train service they are put on six months probation, and if it is found that they are unsuited for the new work, they are dismissed, although this has not yet been found necessary. Before operators are taken from train service, their character is investigated. Before being permitted to drive a motor coach, the candidate trains for several weeks with an experienced coach driver and also receives instructions from the mechanic. When he has been pronounced capable of handling a coach, the prospective candidate is then examined by an officer of the highway department and, if he passes this examination, is given a driver's certificate by the department.

Date .....

NORTHLAND TRANSPORTATION COMPANY

APPLICATION FOR EMPLOYMENT No. .....

DO NOT WRITE HERE

Height ..... Ft. ..... In. Weight ..... Eyes ..... Hair ..... Complexion .....

Beard ..... Moustache ..... General Appearance .....

I hereby make application for the position of ..... with Northland Transportation Co.

My correct name is .....

I was born in ..... on the ..... day of ..... 1 .....

I am now living at ..... having moved there from .....

Nearest Relative is my ..... whose name is ..... and who lives at .....

QUESTIONS TO BE ANSWERED BY APPLICANT

1. Are you married, single or a widower? 2. How many in family?
3. Have you any trade? If so, what?
4. If not American citizen, have first papers been taken out and when?
5. Of what labor or fraternal organizations are you a member?
6. Were you ever employed by this Company or by any other Bus Company before, or on any Steam Road, City Passenger railway, Express or Cab company? If so, state when and where and in what capacity, giving occupation
7. Why did you leave?
8. Have you ever been employed under any other name?
9. Have you ever been arrested? If so, for what?
10. Have you ever been convicted of a misdemeanor or a felony?
11. Have you ever been injured?
12. Have you an automobile? If so, what make?

Commencing five years ago, the applicant must here state how he (she) has been occupied, and if the applicant has been idle any of the time he will state it.

FROM Month	Year	To Month	Year	EMPLOYED AS	RATE OF PAY	In service of whom	ADDRESS	Reason for leaving

Application for Employment Form of the Northland

The Southern Pacific Motor Transport Company has employed experienced drivers, over 21 and under 45 years of age, who are required to pass a physical examination and to furnish a satisfactory record for the preceding five year period. Personality, appearance, etc. are given careful consideration. Before being assured of employment or being placed in active service, the applicant is required to make several trips over the en-

tire district with regular drivers. If approved by them, he then makes an additional trip in company with the supervisor to satisfy the officer that he is qualified to assume the duties of driver.

The New England Transportation Company requires that its coach operators be between 24 and 35 years of age and to have obtaind at least one state driver's license. They are given a physical examination and color, sight and hearing tests on the same basis as conductors or enginement of a railway. They are required to pass an examination on the book of operating rules and to learn the physical characteristics of at least two routes before being put into service. They are also instructed on traffic and accounting matters and are taught to drive a coach with reasonable efficiency before being allowed to go on regular service. This training consumes about two weeks generally. The New England Transportation Company intends later to give all drivers considerable training as mechanics in order that they may be able to handle minor mechanical failures on the road.

The Northland Transportation Company has a fully developed system which it follows in hiring and training its drivers. The age limit for beginning drivers is from 22 to 28 years and an attempt is made to keep them all of a weight from 170 to 200 lb. After being interviewed by the superintendent of drivers, the safety supervisor and the operating manager, an applicant is subjected to a rigid physical examination if the general opinion of him is favorable. If the prospective driver passes the physical examination, he is returned to the safety supervisor, who gives him a book of rules and goes over each item in it thoroughly. The various drivers' report blanks, accident report blanks and other forms mentioned in the book of rules, are explained thoroughly at this time. The candidate is then taken in hand by the ticket checker who explains in detail the method of handling tickets. Then he is sent out on student trips, covering each route in company with the most experienced drivers, this consuming about six days. If the reports of these regular drivers as to satisfactory performance in the operation of the vehicle, handling of passengers and tickets and general mechanical knowledge are favorable, the student driver is placed in charge of a motor coach on a branch run. Here he remains for about two weeks, learning the different conditions that must be met by a coach driver, so that he will be able to handle any situation. He then makes student trips wherever possible at the time, until he has covered the entire system, this requiring at least two weeks.

After this period of training has been completed, the new driver's name is placed on the "extra board" and he must accept any run which is open when his turn comes on the board. The Northland considers that it takes at least six months before a driver learns enough about operating a coach, meeting the public and acquiring general ability to do the company credit. If the driver's record remains good, he is at last given a run of his own when opportunity arises.

EMPLOYEES EFFICIENCY RECORD

OCCUPATION_____

NAME_____ CAP NO._____

ADDRESS_____ LICENSE NO._____

TEL. NO._____ OR NEAREST TEL. NO._____

MARRIED_____ SINGLE_____ AGE_____

EMPLOYED_____ LEFT SERVICE_____

REASON_____

DATE	DISCIPLINED FOR	BY	Credits	Demerits	Per Ct.

Northland Employee Record Which Is Brought Up to Date Every Six Months

Form 21-NET

Name	Occupation	Date of Birth	Place of Birth	Roster	Record No.

Date Entered Service	Date Entered N. H. R. R. Service	Position	Div. or Roster

CHANGES IN SERVICE		RECORD OF DISCIPLINE AND CHARACTER OF SERVICE		
Date	Position	Date	Extent	Cause

Employee Record Card Used by the New England Transportation Company. On the Back Are Shown the Dates and Results of Tests and a Record of Company Property Held

Qualifications of Mechanics

In employing mechanics, the SamOset Company looks for general experience, considering this more desirable than specialized knowledge of one particular maintenance job. The Nashville, Chattanooga & St. Louis follows the same practice, since its operation is small and it requires only one general mechanic. Experience in automotive maintenance is required and tests of ability are given under the supervision of the mechanical engineer of the railway. The mechanic in charge of the maintenance of the Canadian Pacific motor coaches worked with and under the supervision of the

engineers of the company manufacturing its coaches until they pronounced him capable of taking care of the maintenance work.

The practice of the Southern Pacific Motor Transport Company has been to employ mechanics with not only a good general experience in automotive maintenance, but also with a special knowledge of the type of motor coach they will be required to handle. It does not, however, employ specialists for individual kinds of maintenance.

The requirements of the Northland in hiring mechanics are not as strict as those applying in the case of prospective coach operators. General experience in automotive maintenance is required of all mechanics,

Form 35 N L 5M -10-27.

NORTHLAND TRANSPORTATION CO.

_____, 192__

RECORD CARD

TIME ROLL

_____

YOU ARE MERITED DEMERITED TODAY AS FOLLOWS:

_____

_____

_____

_____

_____

_____ No. MERITS DEMERITS _____

SECTION VIOLATED _____

Merit and Demerit Notice Used by the Northland. The Original Is Given to the Employee, the Duplicate to the Timekeeper

but the Northland prefers to hire specialists on motors in its motor unit rebuilding department.

The New England Transportation Company hires mechanics with general experience, but also employs a number of specialists on rear end, transmission, engine and electrical maintenance, depending on its requirements. Most of the men are in the first category, but particular emphasis is laid on hiring specialists, particularly for the engine and electrical departments.

The New England Transportation Company, the SamOset Company and the Union Pacific Stages, have not adopted merit or demerit record systems. Neither does the Southern Pacific Motor Transport Company maintain a merit or demerit record, although the personal record of each employee is kept at division headquarters and on this record are noted meritorious acts or misconduct. The Rutland maintains a merit and demerit system of check upon the performance of its coach driver, although the system has not been in operation a sufficient length of time to determine its effect on his performance. The Nashville, Chattanooga & St. Louis uses the "Brown System" of discipline which is in effect on the railway as well as the coach subsidiary. This applies to mechanics as well as to operators. The Boston & Maine Transportation Company has handled its discipline questions according to the merits of each case and has been strict.

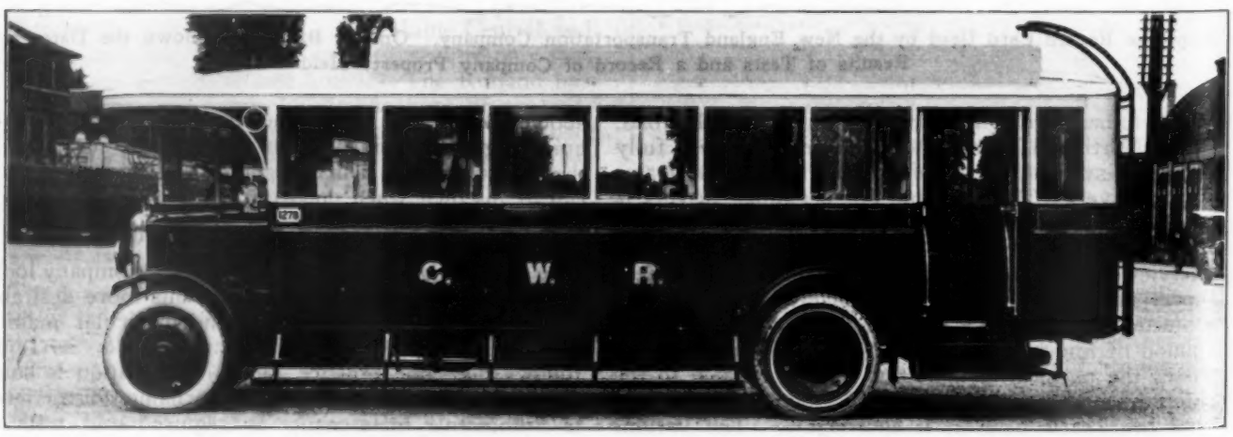
The Canadian Pacific Transport Company uses the same system of discipline in the case of coach drivers as it uses on the railway. Under this system demerit marks are issued against the employee for violation of instructions and merit marks are given for any meritorious services performed. Each month an educational bulletin is issued showing what merit marks and what demerit marks have been issued and the reasons for them. The effect of this has been excellent. A total of 60 demerits is cause for dismissal.

The Northland Transportation Company has a demerit system and a so-called quarter cent bonus. Every three months a driver is given 300 points which represent $30 in money. For any case of faulty operation, failure to fill out a report properly, accidents, misuse of equipment, or any other irregularities, he is reported by the dispatcher or the shop foreman and given a number of demerits corresponding to the character of the fault. At the end of the three months' period the driver must still have to his credit at least 75 per cent or more of his 300 points. If he has not, he is required to report to the operating manager who discusses the situation with him and tries to ascertain the reasons for the poor performance.

The bonus is a one-quarter cent per mile increase in pay, which is given every two weeks to drivers with clean records. To keep a clean record drivers must issue cash fare receipts for cash received at all times, must have no accidents of any nature and must present a uniformly good appearance with courteous demeanor.

The Northland has found that its percentage system has created a very keen spirit among its drivers, each one naturally trying for 100 per cent performance.

* * * *



A Great Western Railway (England) Motor Coach

Two Interstate Regulation Bills

Parker bill proposes jurisdiction over both motor coach and motor truck lines — Denison bill, over motor coaches only

TWO bills to regulate interstate commerce by common carrier motor vehicles have been introduced in Congress. One of the bills, H.R. 19, was introduced by Congressman Denison and the other, H.R. 5640, by Congressman Parker. A bill identical to that of Mr. Denison has been introduced in the Senate by Senator Watson. Although similar in many respects the two bills differ widely in their principal provisions. The Denison bill would regulate only motor coach operations, while the Parker bill would regulate both motor coach and motor truck operations of an interstate character. The Parker bill also goes farther in its provisions toward protecting the railways from unnecessary motor vehicle competition than does the Denison bill.

The Parker Bill

Briefly, the Parker bill provides that motor coach and motor truck operators furnishing or proposing to furnish interstate service must secure certificates of public convenience and necessity as a prerequisite to operation. The actual administration of the regulatory provisions of the bill would be placed in the hands of the various state regulatory commissions, if they elect to assume the responsibility, or failing this, in the hands of the Interstate Commerce Commission. Provision is made for joint boards to consider cases involving more than one state and for appeal to the Interstate Commerce Commission in the event of failure on the part of the states to reach mutually agreeable decisions. The provisions of the Denison bill are similar, except that its passage would result in the regulation of interstate motor coach operations only.

The Parker bill defines "motor carriers" as "those engaged in the transportation as common carriers of persons or property by motor vehicle upon any public highway." The Denison bill defines "motor carriers" as those engaged in the transportation as common carriers of persons only. Both bills divide motor carriers into two classes, designated as Class A and Class B. Class A motor carriers are those engaged in transportation as common carriers in interstate commerce between fixed termini or over regular routes, while Class B motor carriers include all other motor carriers engaged as common carriers in interstate commerce.

Following the designation of the various state regulatory commissions as having the authority to administer the act within their states and specifying that interstate operations may be carried on only by holders of certificates from such commissions, the Parker bill

The Bills Compared

Parker Bill	Denison Bill
Regulates both motor coaches and motor trucks.	Regulates only motor coaches.
Requires certificates of public convenience and necessity.	Requires certificates of public convenience and necessity.
Divides motor carriers into two classes—Class A, those operating over regular routes, and Class B, those not operating over regular routes.	Divides motor carriers into two classes—Class A, those operating over regular routes, and Class B, those not operating over regular routes.
Places regulatory power in hands of state commissions with I. C. C. as final authority.	Places regulatory power in hands of state commissions with I. C. C. as final authority.
Does not consider operation prior to enactment of law as prima facie evidence that certificate should be granted.	Automatically grants certificates to operators in business continuously since March 3, 1925.
Requires consideration of the effect on existing carriers in action upon applications.	Does not require consideration of effect on existing carriers in action upon applications.
Requires security bonds or other evidence of responsibility.	Requires security bonds or other evidence of responsibility.
Requires reasonable rates and prevents changes in rates without notice, and specifies that in fixing rates their effect upon other carriers should be considered.	Requires reasonable rates and prevents changes in rates without notice, but does not require consideration in fixing rates to effect on other carriers.
Requires I. C. C. to set up uniform systems of accounts.	Requires I. C. C. to set up uniform systems of accounts.
Provides for disposition of registration fees and charges.	No such provision.
Permits states to impose taxes on interstate carriers.	No such provision.
Protects authority of states to regulate intrastate carriers.	Protects authority of states to regulate intrastate carriers.

provides that motor carriers in operation on the day the act becomes effective shall be allowed ninety days in which to file applications for certificates covering their operations. Such applications would be heard by the various state commissions, and pending decision on them the operations referred to might continue.

In their applications for certificates, motor carriers would be required to identify themselves and their officers; to state the routes over which they propose to operate if they are Class A carriers, or, in the case of Class B carriers, the principal place of business, the localities or districts in which it is desired to operate, the character of operation to be conducted; the kind of transportation, whether of persons or property, with descriptions of the vehicles to be used; a statement showing the assets and liabilities of the applicants, and any other additional information which may be required. The Parker bill specifies that a certain fee shall accompany such applications, although this is not required in the Denison bill. Class A carriers would present an application to the regulatory commission of each of the states in which it is proposed to operate, while Class B carriers would present an application only to the commission of the state in which the principal place of business of the carrier is located.

Consideration of Existing Carriers

Two of the more marked differences between the Parker bill and the Denison bill appear in the provision relating to the considerations that the commissions shall have in mind in hearing applications for certificates. The Parker bill provides that the fact that a motor carrier was in actual operation in interstate commerce at the time its application was made shall not be taken as prima facie evidence of the existence of public convenience and necessity. The Denison bill, however, reads on this matter as follows: "If it shall appear in the case of a Class A motor carrier on such hearings that an applicant making application within 90 days after the passage of this act, or its predecessors in interest, was, on or before the third day of March, 1925, and continuously since has been and at the time of filing the application still is, legally engaged in the business of a common carrier in interstate commerce on a public highway, such carrier shall be entitled to a certificate of convenience and necessity without further proof." In stating what points the commission shall consider prior to action on applications for certificates, the Parker bill provides that reasonable consideration shall be given to available transportation service by railroad, or other existing transportation agency, to the character of service to be rendered by the applicant, to the likelihood of the proposed service being adequate, permanent, and continuous, and to the effect which such service might have upon any other transportation agency, the continued operation of which is important to the communities served thereby. Nothing is said in the Denison bill regarding consideration of the effect of proposed motor competition upon other existing transportation agencies.

The Parker bill provides that, when public convenience and necessity require the authorization of the service applied for and the applicant is able to perform the service required, the certificate shall be issued, such certificate in the case of Class A carriers authorizing the applicant to engage in transportation by motor vehicle as a common carrier in interstate commerce. The Denison bill, however, provides, in addition, that every Class A motor carrier may without further certificate of convenience and necessity, in the discretion of the regulatory commission, perform the service to be performed by a Class B carrier if the service of the Class A operation is not impaired by this. Both bills provide that certificates shall be transferable only upon the approval of the regulatory commissions, and the Parker bill provides also that application must be made for permission to increase or decrease the number of motor vehicles permitted to be operated under a certificate, except that such approval need not be secured for an occasional or emergency increase.

Both bills provide that motor carriers must furnish bonds and specify in detail what their nature is to be. Insurance policies may be accepted as a part of the security instead of a bond, or entire exemption from the furnishing of a security bond may be granted by the commission, if the carrier has sufficient resources.

Rates and Regulations

Both the Parker and the Denison bills provide that rates, fares and charges shall be just and reasonable and that they shall be published. They also provide that no changes may be made in them except after 30 days' notice, unless the commission shall see fit to allow changes upon shorter notice. Provision is made for the filing of complaints with the commission regarding existing rates and regarding the action of the commission on such complaints. One paragraph in the Parker bill, which is not included in the Denison bill, reads as follows: "In fixing rates to be charged for the carrying of persons or property the joint board or commission shall take into consideration the kind and character of service to be performed, the public necessity therefor, and the effect of such tariff and rates upon other transportation agencies, if any, and as far as possible avoid unreasonable competition with existing service furnished by other carriers, motor or rail."

Both bills specify that the Interstate Commerce Commission shall promulgate uniform systems of accounts to be used by all motor carriers and that after the effective date, motor carriers shall use no other system. The regulatory commissions granting certificates are also charged with the supervision and regulation of every motor carrier operating under such certificates. Their duties are "to require reasonably continuous and adequate service at just, reasonable and not unduly discriminatory rates and to supervise and regulate such motor carriers in all matters affecting the relationship between such motor carriers and the traveling and shipping public; and any board or commission shall, after hearing, have authority to suspend or revoke any certificate issued by it for failure to comply with any law, or with any lawful order made by it, affecting said carrier."

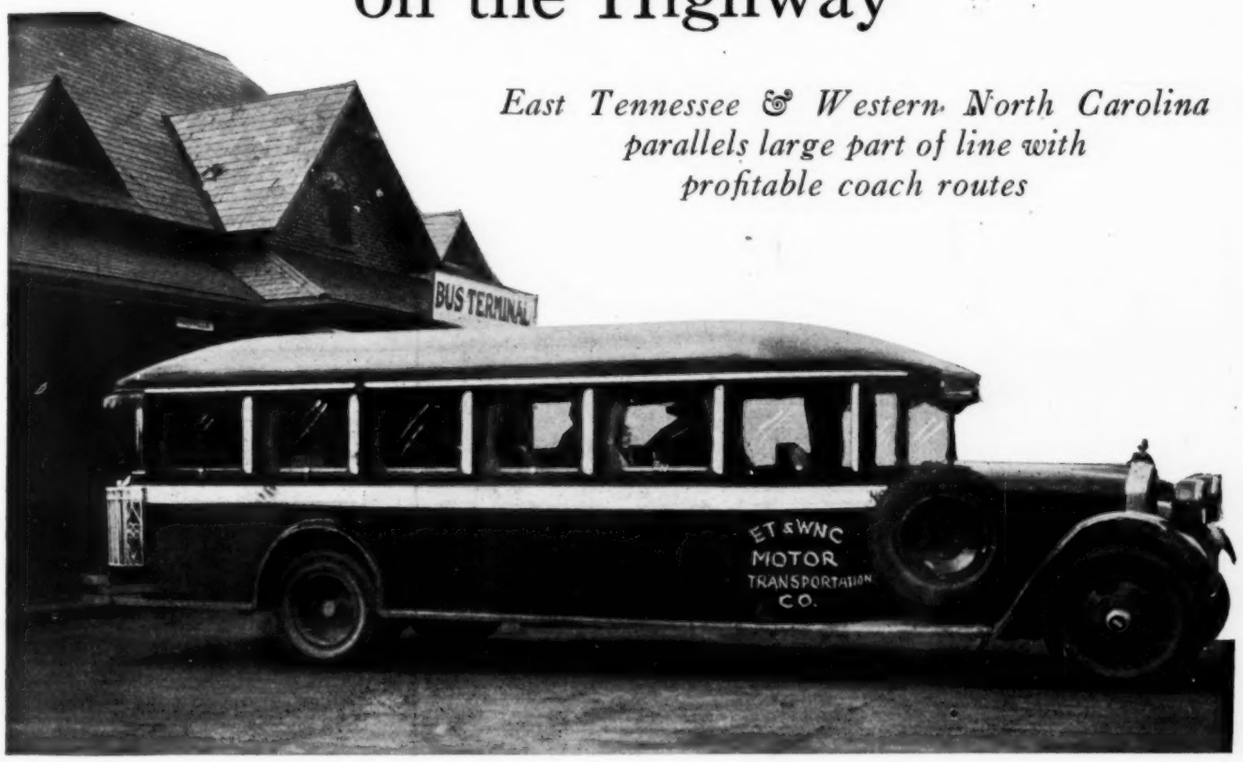
Disposition of Fees—Taxation

The Parker bill has two additional sections, however, one on the disposition of registration fees, the other on taxation, which are not included in the Denison bill. With respect to registration fees, the Parker bill provides that all moneys received by any regulatory commission from fees or charges shall be paid by it to the Interstate Commerce Commission to be held by the latter as a separate fund and to be used as far as necessary to defray the expenses of the administration of the act by the state commission so receiving and paying the same.

On the subject of taxation, the Parker bill provides that any state may impose the same taxes or other charges on motor carriers engaged in interstate commerce for the use of the public highways in that state as it imposes on motor carriers engaged solely in intrastate commerce in the state.

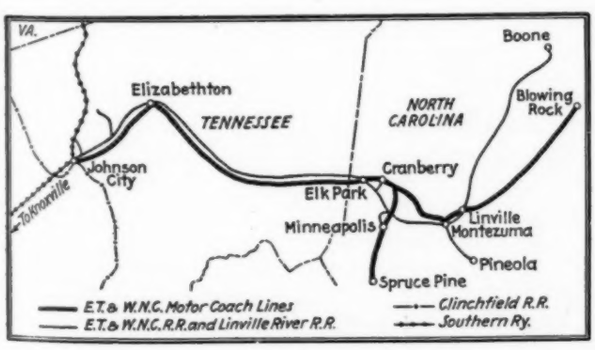
Narrow Gage Line Makes a Success on the Highway

East Tennessee & Western North Carolina parallels large part of line with profitable coach routes



Coaches Used Are White Parlor Type

THE East Tennessee & Western North Carolina is a narrow gage (3 ft.) line extending eastward from Johnson City, Tenn., to Boone, N. C., a distance of 66 miles, which includes the company's affiliated line, the Linville River Railway. In addition to this main line mileage there are a number of branches, and a third rail has been laid so that the road can handle standard gage equipment over 10 miles at the western end of the line. The road connects with the Southern and the Clinchfield, and it has for many years been a



rather prosperous property. However, a few years ago, the two states in which it operates began the construction of hard-surfaced highways in its territory, and the effect of highway competition began to be immediately felt, particularly in passenger service. Nine miles east of Johnson City is Elizabethton. Between these two communities there has been an extensive industrial development and passenger travel on the railroad was formerly of considerable volume, the road operating frequent schedules in each direction daily for a time between these points. In the first month following the completion of the hard-surfaced highway between these towns, however, railroad passenger travel between them fell off 80 per cent.

In order to protect its revenue, therefore, the road decided to enter the motor coach business in territory adjacent to its lines. Accordingly, it bought out an operator who was paralleling a considerable part of its line.

The road now operates coach service from Johnson City to Elk Park and Spruce Pine, with a much more frequent service over a portion of the route, i.e., between Johnson City and Elizabethton. It also operates a line from Johnson City through Elk Park and Linville to Blowing Rock, which latter, however, is not operated during the winter months, owing to imperfect road conditions. It will be noticed from the map that the two long lines, namely that to Spruce Pine (60 miles) and that between Elk Park and Blowing Rock (36 miles) do not follow strictly the line of the railroad over the entire route. This slight deviation was made necessary by the location of improved highways. The company's entire passenger train service now consists of one round-trip over the line each day, with an additional round trip on Sunday.

Enables Curtailment of Train Service

The installation of the coach service enabled the road to dispense with mixed train service between Johnson City and Pineola, the handling of passengers on local

freight trains, and the maintenance of a local crew at Pineola, which operated a train to make connections with main line trains at Montezuma. As stated above, the frequent train service between Johnson City and Elizabethton was also dispensed with. This reduction in train service naturally effected considerable savings for the railroad.

However, the benefits of the coach service did not stop there. This service is rendered by a subsidiary, the ET & WNC Motor Transportation Company. Adding the revenues of this company to those of the railroad and its affiliated company, the Linville River Railway shows total passenger revenues for all companies for the nine months ended September 30, 1927, over 28 per cent greater than for the same period in 1926 before the highway subsidary came into existence, with

ET&WNC MOTOR TRANSPORTATION COMPANY

OPERATING EXPENSES

Month of _____

	JOHNSON CITY-ELIZABETHTON ROUTE	JOHNSON CITY-SPRUCE PINE ROUTE	TOTAL
MAINTENANCE OF PLANT AND EQUIPMENT -			
Superintendence,			
Maintenance of Vehicles,			
Tires and Tubes,			
Retirement Expenses,			
TOTAL MAINTENANCE OF PLANT AND EQUIPMENT ------			
OPERATING GARAGE EXPENSES -			
Gasoline - Gals			
Lubricants,			
Garage Supplies and Expenses,			
TOTAL OPERATING GARAGE EXPENSES ----------			
TRANSPORTATION EXPENSES -			
Superintendence,			
Bus Operators,			
Station Expenses,			
Other Transportation Expenses,			
TOTAL TRANSPORTATION EXPENSES ----------			
GENERAL EXPENSES -			
Gen'l Officers' salaries and Expenses,			
Insurance,			
Other General Expenses ----------			
TOTAL GENERAL EXPENSES ----------			
GRAND TOTAL OPERATING EXPENSES ----------			

	JOHNSON CITY-ELIZABETHTON ROUTE	JOHNSON CITY-SPRUCE PINE ROUTE	TOTAL
Number of Buses in Operation,			
Total Bus Miles,			
Average Revenue per Bus Mile,			
Average Operating Expenses per Bus Mile,			

ET&WNC MOTOR TRANSPORTATION COMPANY

GENERAL BALANCE SHEET

_____ 192_

ASSETS

INVESTMENT ----------		
Equipment,		
Franchises,		
Organization Expenditures,		
CURRENT ASSETS ----------		
CASH,		
Special Deposits,		
Balances Receivable, from Agents and Drivers,		
Accounts Receivable,		
Material and Supplies,		
UNADJUSTED DEBITS ----------		
Insurance Premiums Paid in Advance,		
Taxes Paid in Advance,		
Other Unadjusted Debits,		
GRAND TOTAL ASSETS ----------		

LIABILITIES:

CAPITAL STOCK ----------		
CURRENT LIABILITIES ----------		
Unpaid Pay Rolls and Vouchers,		
E.T.& W.N.C.R.R. Co.,		
UNADJUSTED CREDITS ----------		
OPERATING RESERVE- Tires and Tubes,		
RETIREMENT RESERVE - EQUIPMENT,		
CORPORATE SURPLUS ----------		
INCOME ACCOUNT -		
PROFIT AND LOSS -		
GRAND TOTAL LIABILITIES----------		

ET&WNC MOTOR TRANSPORTATION COMPANY

OPERATING DIST ANALYSIS

ACCOUNT	PER BUS MILE ELIZABETHTON	SPRUCE PINE	AVERAGE
MAINTENANCE OF PLANT AND EQUIPMENT -			
Superintendence,			
Maintenance of Vehicles,			
Tires and Tubes,			
Retirement Expense,			
TOTAL MAINTENANCE OF PLANT AND EQUIPMENT ----			
OPERATING GARAGE EXPENSE -			
Gasoline,			
Lubricants,			
Garage Supplies and Expenses,			
TOTAL OPERATING GARAGE EXPENSE ----------			
TOTAL TRAFFIC EXPENSES ----------			
TRANSPORTATION EXPENSES -			
Superintendence,			
Bus Operators,			
Station Expenses,			
Other Transportation Expenses,			
TOTAL OPERATING EXPENSES ----------			
GENERAL EXPENSES -			
Insurance,			
Other General Expenses,			
TOTAL GENERAL EXPENSES ----------			
TOTAL OPERATING EXPENSES ----------			
TAXES			
GRAND TOTAL ----------			

ET&WNC MOTOR TRANSPORTATION COMPANY

COMPARATIVE INCOME STATEMENT
(ALL LINES)

Month of _____

	This Month	Last Month	Increase or Decrease
OPERATING REVENUES -			
Passenger Revenue,			
Mail Revenue			
Parcel Room,			
TOTAL OPERATING REVENUES ----------			
OPERATING EXPENSES -			
Maintenance of Plant and Equipment,			
Operating Garage Expenses,			
Traffic Expenses,			
Transportation Expenses,			
General Expenses,			
TOTAL OPERATING EXPENSES ----------			
NET REVENUE FROM OPERATIONS ----------			
TAXES ACCRUED,			
OPERATING INCOME ----------			
NON-OPERATING INCOME:			
Income from Unfunded Securities & Accts.			
NET INCOME ----------			

Treasurer,
Johnson City, Tenn., _____ 192_

Blank Statements Showing Classification of Accounts

a greater increase during the more recent months of the period. In other words, the coach service has proved to be no mere substitute for an unremunerative train service, but has brought a considerable volume of traffic in its own right. Moreover, the coach lines have not only drawn traffic but are also proving remunerative. In fact, it is not the company's policy to establish lines merely for the sake of curtailing railway losses. Rather it expects that the coach line should have good prospects of making a profitable showing before it is established.

The independent operator whose lines the ET & WNC purchased, had as equipment two White parlor cars and two White sedan type coaches. The ET & WNC, however, has substituted parlor cars for these sedans and now has six coaches—all four-cylinder Whites—in addition to a high speed freight truck, which was converted from one of the sedans.

Coach Operations Separate from Railroad

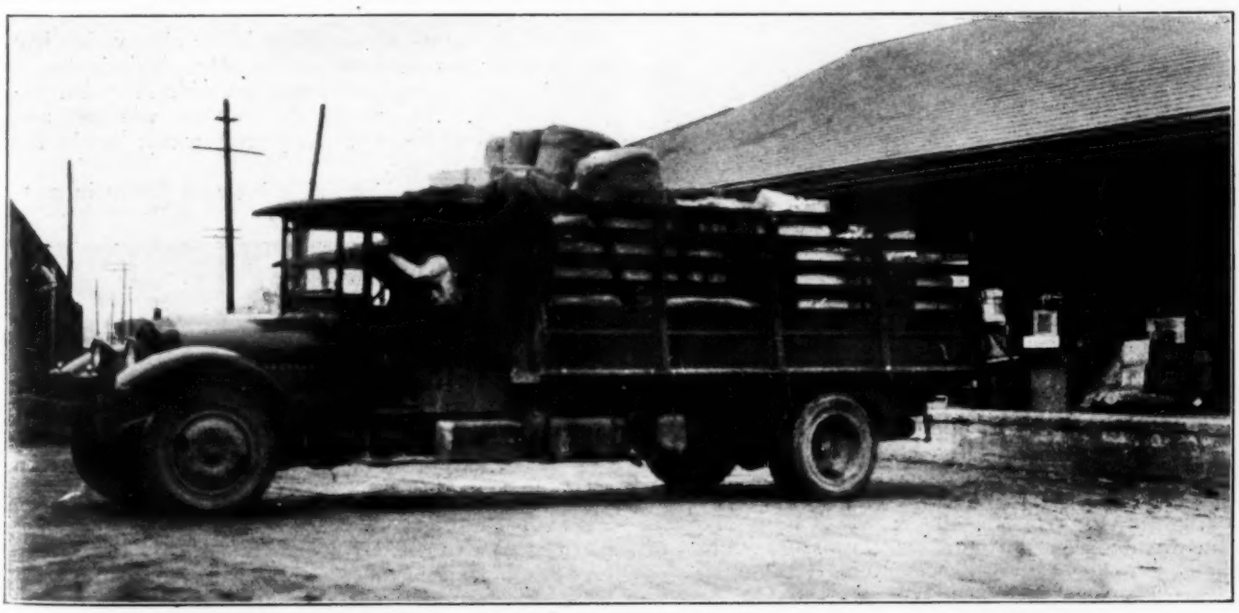
The coach operations of the ET & WNC are kept entirely separate from the rail operations. Tickets are not interchangeable. There is no regulation of highway common carriers in Tennessee, but regulation exists in North Carolina and a transfer of certificates of authority to operate from the independent owner to the railroad subsidiary was approved by the state authorities. North Carolina also requires a filing of tariffs, which regulation of course has been complied with. The coach rates, in general, are about the same as the rail fares, with rates for commutation tickets slightly higher. The classification which the company uses on its income statement, its analysis of operating costs and its balance sheet, are shown in the illustrations herewith. The company depreciates its equipment on the basis of two per cent per month.

Daily Coach Milage 580

The three routes which are operated, as will be seen from the map, overlap largely. In summer the total operation covers 96 miles of highway and in winter when the Blowing Rock line is discontinued, approximately 60 miles of highway. On the lines to Elizabethton and Spruce Pine, there is a total daily coach mileage of 580.

The Railroad Station in Johnson City Is Also a Union Highway Terminal

The ET & WNC began highway operations on December 21, 1926, and has not, of course, been long enough in the business to state definitely what its policy in the years to come may be. The venture so far is still regarded something as an experiment, but an experiment the early indications of which appear to be favorable. Given continued improvement in highway conditions, the road may eventually parallel its entire line with all-



The Company Is Entering the Freight Business, Using Truck Bodies on Coach Chassis

year-round coach service. That, however, lies sufficiently in the future to be somewhat speculative at the present time.

Is Entering Freight Field

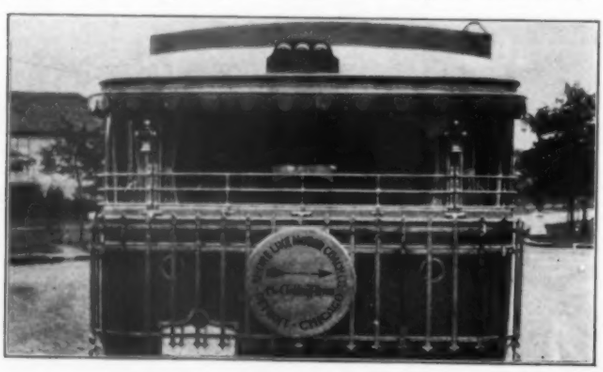
During October of last year, the motor transport subsidiary instituted truck service for the handling of freight. It was not the policy of the company to provide this truck service as a substitute for rail service, but rather to reclaim traffic which had already left the rails. A door-to-door service is provided by this truck, which has established regular tariffs, on file with the North Carolina Corporation Commission. The highway subsidiary does not solicit freight from shippers or consignees using rail service, but rather from those who have already shown a preference for the type of service which the truck can provide. The venture into the freight field is extremely new. However, the company already has been forced to take steps looking to the provision of an additional truck, so has the business grown. The equipment now used, as stated above, is a truck body mounted on a White coach chassis, from which a sedan type body was removed. The additional truck will be provided in the same manner from a White sedan coach now held in reserve.

Railroad Station a Union Coach Terminal

The railroad station at Johnson City was not overtaxed with business, naturally, so the company made it serve also as a highway terminal, not only for its own coaches but also for those of other lines which enter Johnson City. These other lines, of course, pay the company for the privilege.

Unusual Luxury Marks "Golden Arrow" Motor Coach

THE special "Golden Arrow" motor coaches operated by the Chicago, South Shore & South Bend in its joint rail and highway service between Chicago and Detroit, Mich., embody a number of new features of design and of unusual luxury of interior ap-



Rear View of the "Golden Arrow"

pointments. The operation of the train-motor coach service, whereby the South Shore Line carries passengers between Chicago and Detroit on a 8½ hr. schedule, using special trains between Chicago and South Bend, Ind., and motor coaches between South Bend and Detroit, was described in the *Motor Transport Section* of August 27, page 421.

The "Golden Arrow" motor coaches seat 25 passengers in a special body built by the Bender Body Company, Cleveland, Ohio, mounted on the six-cylinder model-54 chassis of 227 in. wheel base, built by the

The Interior from the Front of the Coach

White Company, Cleveland. The interiors are upholstered in blue leather with the tops of seat cushions and the faces of the seat backs upholstered in blue striped plush to harmonize with the leather. The interior corners of the roof are equipped with nickeled racks to carry hats and wraps or small parcels. Heavier baggage is carried in an enclosed luggage box installed on

The Observation and Smoking Compartment

the roof and made accessible by steps and hand rods at the side of the body. The interior woodwork is mahogany color.

A special feature of the coach is the observation bay and smoking compartment at the rear. This is equipped with nine facing chairs and has wide rear observation windows. An awning shades these windows and sets off the nickeled balcony rail which holds the illuminated sign disc.

Opening onto the short aisle between the main seat-

Side View of the "Golden Arrow"

ing compartment of the coach and the observation compartment is a completely equipped lavatory. This lavatory has a chemical toilet, a wash basin, a mirror installed at the left side, and a cabinet for small parcels at

the right side. A drinking water bottle with cups is installed near the entrance door.

The exterior of the body is painted in yellow and blue, the upper part being bright yellow and the lower part bright blue. The baggage box on the roof is painted blue striped in yellow. The "Golden Arrow" insignia is painted on the sides of the coach and a similar insignia appears on the illuminated sign at the rear, this bearing also the name of the Shore Line Motor Coach Company and the inscription "Detroit-Chicago."

Communications

"Motor Bus" or "Motor Coach"

NEW YORK

TO THE EDITOR:

We have read with great interest your editorial in the December 24 issue of the *Motor Transport Section*, on the subject of the designation of motor vehicles used for passenger purposes.

We desire to compliment you on the decision hereafter to designate such vehicles as motor coaches. In our articles dealing with travel and transportation we have for some time standardized this term, feeling strongly that the word "bus" is an unfortunate designation.

"Bus" is in reality an abbeviation of omnibus. For generations omnibus has been associated with lumbering, horse-drawn vehicles and in its full spelling is certainly a most inappropriate word to describe the modern motor coach. The definition of omnibus in the Standard Dictionary reads: "A four-wheeled public passenger vehicle with entrance at the rear and seats along the sides . . .". Thus the parent word is inaccurate as a description of the present motor coach and we believe the abbreviation is accordingly inaccurate. Likewise, the term "motor stage" used in the West suggests the means of transportation used before the day of the rail or the motor coach.

The efficient, comfortable and handsome vehicle of today is certainly worthy of the dignified and descriptive designation of "motor coach" and we congratulate you on your intention to use this term regularly. No doubt your decision in this respect will go on a long way toward bringing "motor coach" into universal usage.

ARTHUR C. MACK,
Travel Manager, The Literary Digest

TO THE EDITOR:

The term "motor coach" is the most appropriate to use in describing a passenger vehicle of large capacity operating on the highways. The term "motor bus" should be relegated to the scrap heap, being unadapted to the present day "motor coach" with its riding comforts, splendor and safety. "Bus" is an abbreviated name for omnibus, which means a public four-wheeled carriage for passenger traffic, to be horse driven or power driven, and with or without a top covering.

Until a few years ago, when one spoke of a "bus," the only thought was of a passenger vehicle whose sole operation was between railroad stations and hotels, for the convenience of hotel patrons, or between one railroad station and another in cities where all railroads do not enter the same station, and where in practically every case the "bus" was owned or operated by transfer companies or hotels. Little attention was given to the comfort of the traveler, as the ride was of short duration and did not necessitate any elaborate means for his carriage.

Today, with some of the largest railroads among the operators of motor coach lines in co-ordination with their trains, much has been done to bring about an unprecedented motor coach service which, I dare say, cannot be improved upon from the standpoint of equipment inasmuch as the last word in design, beauty and comfort has been attained. The term "motor coach" is the most fitting name to be used to describe our Pullmans of the highway.

C. J. KEENAN,
Tariff Compiler, General Freight Department, Southern Pacific.

Mack's New High-Speed Heavy-Duty Trucks

A NEW high-speed motor truck, with a capacity of from 3½ to 5 tons on 162 in., 174 in., and 186 in. standard wheel bases, has been announced by Mack Trucks, Inc. The new truck is known as the Model AK. Many of the characteristics of the Mack "Bulldog," Model AC, trucks are incorporated in the new unit. These include the heavy-duty four-cylinder engine with three point suspension, and either the dual-reduction drive or the chain drive.

The engine of the Model AK truck has a 4⅝ in. bore and 6-in. stroke, the cylinders being cast in block and

The New Mack Model AK Motor Truck

having detachable aluminum heads. The transmission is suspended in four blocks of live rubber held under compression. An additional feature of the transmission is an extra high speed reverse which may be obtained at a small extra cost. The springs are insulated against shock by rubber, reducing vibration to a minimum and eliminating the lubrication problem of metal shackles.

Being a high-speed truck, the Model AK has four-wheel brakes of the internal expanding type in addition to the emergency brake, which operates mechanically and is of the external contracting type. The new model has a sharper turning circle, made possible by center point steering, which results in exceptionally easy handling in traffic.

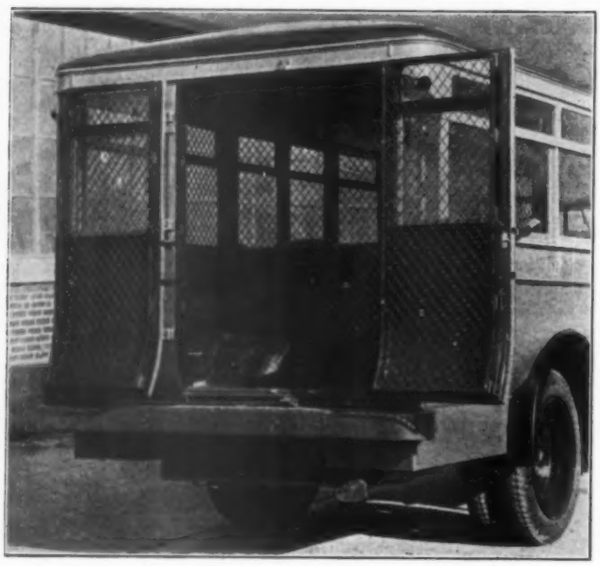
The cab is all-steel with sliding doors and is mounted in rubber shock insulators. In addition, the seat itself is mounted in rubber.

* * *

A Garford Double-Decker Owned by South Australian Government Railways

Complete Substitution on C. of Ga. Branch

THE Central of Georgia Motor Transport Company, highway subsidiary of the Central of Georgia Railway began its first motor coach operation on January 13 with the opening of the Fort Valley-Perry (Ga.) line (12.5 miles). The motor coach will take the place of a train on this branch line,



Baggage Compartment Doors Will Clear Bulky Articles

making two round trips daily and one round trip on Sunday.

The coach purchased for this service is shown in accompanying illustrations. It is a 4-cylinder A B city type Mack with 196 in. wheelbase. The body, as the illustrations show, is specially built to accommodate baggage, express and mail matter as well as passengers. The baggage compartment is 6 ft. deep and, while provided with windows like the rest of the coach, is lined throughout with heavy wire and floored with sheet steel to avoid damage from the lading. The windows of the baggage compartment as an additional safety measure are of wire glass.

The baggage compartment doors open to the back, providing door space practically the width of the coach. These doors can be bolted top and bottom and also locked at the center. The emergency door for the passenger compartment is located just ahead of the baggage compartment on the left hand side.

The passenger compartment contains city-type seats for 15 passengers, the back seat being across the rear of the compartment and over the rear wheel housings, avoiding any difficulty from these housings.

This operation is one of the first motor coach operations in substitution for train service in this part of the South and, as stated previously, is a complete substitution, the coach being designed particularly to perform all the functions of the supplanted passenger train.

Terminal Transfers by Tractor and Trailer

THE New York, Chicago & St. Louis, which has replaced trap car transfers between its freight stations at Cleveland, Ohio, with the operation of tractors and trailers, has found the latter plan more economical and also considerably faster. In common with other railways at Cleveland, it contracts for tractor and trailer service between its freight stations with the Consolidated Cartage Company, formerly the Seller-Kilrain Cartage Company.

Transfers of l.c.l. freight are handled by tractor and trailer, not only between the Nickel Plate's own stations, but also between the Nickel Plate and other railways. The Nickel Plate freight stations are located at One Hundred and Tenth street, West Twenty-Fifth street, East Seventy-Ninth street, Ivanhoe and down town. The number of daily trips made by tractors and trailers between these five stations depends upon the tonnage of freight to be handled, but the average is about two trips to and from each station daily.

The Nickel Plate also has a transfer freight house at Ninth street and a city freight house at Hill street, between which two trailers leased by the Nickel Plate are operated at fairly frequent intervals. The number of trips between these houses depends also on the amount of freight to be transferred.

Formerly when trap cars were used to make transfers between the freight stations, a day was lost in the transfer movement since the trap cars left the stations in the

Emergency Door Located on Left Just Ahead of Baggage Compartment

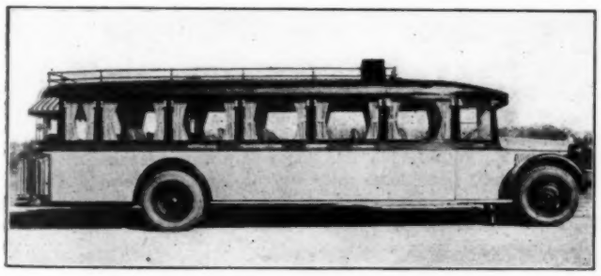
evening and arrived at the other stations in the morning, when they were unloaded. Under the tractor and trailer operation, however, transfers are made more frequently, so that freight delivered to Nickel Plate freighthouses in the morning or in the early part of the afternoon is forwarded on the same day.

The trailer equipment used by the Nickel Plate consists of Fruehauf semi-trailers, manfactured by the Fruehauf Trailer Company, Detroit, Mich. The trailers have end doors which are sealed after loading as in the case of box cars. Bills covering shipments of l.c.l. freight in the trailers are forwarded with them.

Northland's W. M. C. Coaches

THE Northland Transportation Company has placed in service six new coaches manufactured by the C. H. Will Motors Corporation, Minneapolis, Minn., which have seats for 38 passengers. In providing seats for this number of passengers in motor coaches mounted on a 239-in. wheel base, every available inch of space has been utilized. In these coaches the seats are 29½ in. from back to back. The head room over the aisle is sufficiently great so that standing passengers do not have to stoop. Heavy baggage may be handled on the roof of the coach, but accommodations for smaller parcels are provided in the large parcel racks which extend the length of the bus on the inside.

The new coaches are heated by the Tropic-Aire hot water heating system, which eliminates any possibility of exhaust gas from the motor circulating in the coach. A small radiator at the front of the coach circulates hot water from the large motor radiator, and an electric



New 38-Passenger W. M. C. Coach

fan behind the small radiator circulates heated air to every part of the interior. The floors of the coaches are constructed with a cement covering to eliminate any chance of the suction on the road drawing dust into the car. This construction also eliminates drafts around the feet of the passengers.

This new WMC motor coach, which is known as Model "GY-6," has a six-cylinder Waukesha engine and Westinghouse air brakes operating on the rear wheels. Timken axles are used in both front and rear. The springs are of a special WMC design and construction, being of the semi-elliptic type at front and rear. The Ross steering gear and the Brown-Lipe transmission are provided. The front and rear motor supports are heavily insulated with rubber as is the drive line.

The seats are of special design and are upholstered in genuine leather, and the floor covering is linoleum. The interior is lighted by a series of special dome lights and the plate glass windows are operated by the Ternstedt window regulating mechanism.

Motor Transport News

THE RIO GRANDE MOTOR WAY, INC., subsidiary of the Denver & Rio Grande Western, which operates motor coaches between Alamosa, Colo., and Monte Vista, has applied to the Colorado Public Utilities Commission for a certificate permitting the transportation of freight by motor truck between these points.

THE ALTON TRANSPORTATION COMPANY, subsidiary of the Chicago & Alton, has filed an application with the Missouri Public Service Commission for a certificate of convenience and necessity authorizing the operation of a motor coach line between Jefferson City, Mo., and Mexico. Connection with the main line of the railway between St. Louis and Kansas City would be made at Mexico. According to the application, two round trips daily would be made between Jefferson City and Mexico and 21-passenger motor coaches of the parlor-type would be used. The proposed rate of fare is $1.75.

THE SOUTHLAND TRANSPORTATION COMPANY, Cincinnati, Ohio, which operates motor coaches for the transportation of employees between Covington, Ky., and Stevens, under contract with the Chesapeake & Ohio, has been merged with the Greyhound Lines, Inc., one of the largest motor coach systems in the middle west, with headquarters at Chicago. The Greyhound Lines, Inc., and a number of other motor coach companies in the central states are controlled by the Motor Transit Corporation, a holding company. H. A. Spearin, president of the Southland Transportation Company, has been appointed general manager of the Greyhound lines operating from Cincinnati.

Motor Coaches Again Handy in Emergency

A fleet of 15 motor coaches were pressed into emergency service by the Southern Pacific on December 14 when trains to California from Portland, Ore., were held up at Pollock, Ore., and Dunsmuir, Cal., on account of a slide at Tunnel No. 5 west of Pollock. The motor coaches were used in carrying stranded passengers around the tunnel. Thirty-one motor trucks were also requisitioned to carry mail, baggage and express.

Two Roads Use Motor Coaches to Transport Employees in Savannah

The Atlantic Coast line on January 11 began the operation of motor coaches for the transportation of employees between Savannah, Ga., and its Southover shops. These shops are on the outskirts of the city and transportation of employees heretofore has been taken care of by the operation of shop trains.

The Seaboard Air Line also carries employees between Savannah and its West Savannah terminal exclusively by motor coach, in lieu of shop trains, which have been discontinued.

Jersey Commission Changes Motor Coach Rules

Three changes in the rules governing motor coaches engaged in interstate or intrastate transportation in New Jersey have been announced by the secretary of the New Jersey Public Utilities Commission. The practice of placing seats in the aisles of coaches running between points in New Jersey and points in New York or other states, known as Class 3 vehicles, will no longer be allowed under the new regulations. Standees in parlor-type motor coaches, will no longer be allowed in the coaches which furnish express interurban service.

The board has also lengthened the permissible body length from 28 ft. to 32 ft., with the requirement that the aisles be a full 12 in. wide and that there be an emergency exit door 18 in. wide. The board also specified that owners of interstate coaches must carry not less than $5,000 liability insurance for bodily injury or death arising from an accident in the operation of the coaches.

Quebec Commission Head Favors Railroad Operation on Highways

Adrien Beaudry, chairman of the Public Service Commission of the Province of Quebec, recently returned from an extensive

tour of observation in Europe, has issued a report in which he favors strongly the entrance of the railways into the field of highway motor transport. After summarizing the advantages of the motor coach and the motor truck for transportation over short distances, he mentions the technical and financial advantages the railroads have over individuals and recommends that, where such services as required, the railways themselves provide them.

Fix Dates for 1928 A.E.R.A. Convention

The forty-seventh annual convention of the American Electric Railway Association will be held in the Cleveland Public Auditorium at Cleveland, Ohio, on September 22-28, 1928. In connection with the convention the operating and manufacturer members of the association will hold the usual exhibit, and this will also take place in the auditorium and in the auditorium's west wing, both buildings being required to accommodate the display. The diagram of the exhibition spaces will be available for distribution to the membership about May 1, 1928, together with applications for space.

The exhibit feature of the convention has grown in importance each year. The space occupied by exhibits at the convention totalled 116,634 sq. ft. Seventy-nine motor coaches, trucks and chassis were on display, 49 street and interurban cars were shown, and, in addition, all important tool manufacturers and accessory concerns showed products of interest to the transportation industry. There were 293 exhibitors in all.

While exhibition facilities at Cleveland last year far surpassed those available in other cities, the Cleveland convention committee has assured the association that these facilities will be improved upon for the coming convention. The new wings of the Cleveland auditorium are now in course of construction and will be completed by September.

Alton Motor Coaches Increase Traffic

The total number of passengers carried by the Chicago & Alton and its subsidiary, the Alton Transportation Company, between Jacksonville, Ill., and St. Louis, Mo., has increased substantially since the subsidiary company began the operation of a motor coach line over this route on October 10, 1926. During the year beginning October 1, 1926, and ending September 30, 1927, the Chicago & Alton carried 96,326 passengers on its trains between Jacksonville and St. Louis. In the previous year it handled 127,395 passengers by train, so that there was a decrease of 31,069 in 1927.

The motor coach line, during the first year of its operation, carried 51,889 passengers. There was thus an increase in the total number of passengers carried of 20,820 in the year ending September 30, 1927, compared with the year before, so that, while there was a decrease in passengers carried on the railway of 20 per cent, there was an increase in total passengers carried by both railway and motor coach line of 10.3 per cent.

Commission Revokes Certificates on Account of Poor Service

The Louisiana Public Service Commission following an investigation into the motor coach service operated under two of its certificates between Lake Charles, La., and the Louisiana-Texas state line, has cancelled the certificates of the two existing operators over this route and granted a certificate to perform the service to the Interurban Transportation Company, which the commission believes will furnish the best possible service over the Lake Charles-Sabine River line.

The commission had received numerous complaints regarding the motor coach service between Lake Charles and the Louisiana-Texas state line, charging inadequate service and equipment and irregularity of schedules. The commission, therefore, instituted a general investigation into the situation. It developed that one company had been granted a certificate to operate over this route but that it had not availed itself of its rights under the certificate. The commission, therefore, cancelled the certificate. Another operator had been given a certificate to serve the same route and had conducted operations unsatisfactorily until July, 1927, when he negotiated with another operator with a view to transferring his rights under the certificate that he held. This transfer was approved by the commission, but the commission found that the resulting service was equally unsatisfactory as that previously rendered by the first holder of the certificate, and it, therefore, ordered the certificate cancelled.

The Interurban Transportation Company had been granted a certificate covering over routes in Louisiana, but not covering the Lake Charles-Sabine River highway. The commission found that this company has been rendering excellent service over the routes it has been operating.

In its opinion the commission said: "In view of the general dissatisfaction with the service now rendered on this route and the general approval which the service rendered by the Interurban Company on other routes seems to have gained, the commission, in conformity to its expressed policy of requiring the highest character of bus service possible, consistent with the traffic and operating conditions to be met, deems it to be the advantage of the general public to authorize the Interurban Company to inaugurate and maintain service along the route in question."

Lehigh Valley Offers Container Service

The Lehigh Valley on January 23 began the operation of container service on its lines, under contract with the L.C.L. Corporation. The service is similar to that provided on the New York Central and the Boston & Albany, containers being handled in gondola cars, transfer being effected between car and motor truck by crane. Tariffs filed covering the service provide rates lower than those for ordinary l.c.l. shipments, but higher than car load rates. All truck service necessary is provided by shippers and consignees. Containers have a maximum capacity of 7,000 lb. and are loaded 6 to a car.

The Lehigh Valley has provided facilities—team tracks, cranes, platform space, etc.—at four points, the Twenty-seventh street terminal, New York, Newark, N. J., Wilkes-Barre, Pa., and Buffalo, N. Y. Expenditures for these improvements total about $200,000. Facilities will be provided at other points where sufficient demand for the service arises. Interchange of containers with the New York Central and the Boston & Albany is provided for.

Motor Transport Officers

Ellis S. Bauer has been appointed superintendent of the Santa Fe Transportation Company, with headquarters at Santa Fe, N. M.

Clark V. Wood, Jr., has been appointed assistant supervisor of the Connecticut lines of the New England Transportation Company. He was formerly connected with the Springfield Street Railways, Springfield, Mass., and the United Electric Railways, Providence, R. I.

A. P. Russell, vice-president of the New York, New Haven & Hartford and president of the New England Transportation Company, subsidiary of the New Haven, has been elected president of the New England Bus Association. This association was organized in November, 1927, and has its headquarters at Boston, Mass. **H. F. Fritch,** passenger traffic manager of the Boston & Maine and president of the Boston & Maine Transportation Company, has been elected vice-president of the New England Bus Association.

Among the Manufacturers

J. D. Dunlevy, advertising manager of the India Tire & Rubber Company, Akron, Ohio, has been placed in charge of direct sales in the Akron district. **A. C. Fisher,** manager of the accessory and repair materials department, has been appointed advertising manager in place of Mr. Dunlevy.

A. J. Brosseau, president of **Mack Trucks, Inc.,** has been appointed chairman of the motor truck committee of the National Automobile Chamber of Commerce. Mr. Brosseau has also been elected vice-president of the commercial car division of the chamber. Mr. Brosseau succeeds, in both of these offices, **Windsor T. White,** formerly chairman of the board of the **White Company.**